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RAIL-ROAD NEWS.

Locomotives for Inclined Planes.

In 1840, William Hoyt, of Dupont, Indiana, invented a locomotive for ascending inclined planes, and made a model of it at the Railroad Depot at North Madison. He carried the model to Baltimore, Philadelphia, and Washington cities, endeavoring to get men of capital to join him in procuring a patent, and constructing an engine. In this he failed; the model, however, was deposited in Washington, but he did not secure a patent until 1849. In 1845, however, he was introduced to the foreman of the machine shop at the Railroad Depot, and he went to Philadelphia and got a locomotive constructed on the very plan, at Baldwin's, for the Madison and Indianapolis Railroad. This very same person endeavored, we are informed, to prevent Hoyt from securing a patent, and also managed to get one himself. Mr. Hoyt, about two years ago, we believe, instituted an action for infringement against the said Railroad Company. His title to originality was disputed, and claims for damages were resisted for a long time. They have at last, however, recognized them, and compromised the dispute by paying him a handsome sum. His claims of originality are thus admitted, but it would have been more to the credit of *all* his opponents if they had frankly admitted them at the very first. This invention is one which has effected a great saving to that Railroad, but the poor inventor could not get one to help him in securing a patent in 1840. Here is a case for the "New York Daily Times." If this man had not been able to secure a patent, would he ever have got the least remuneration for his valuable invention? No, not one cent.

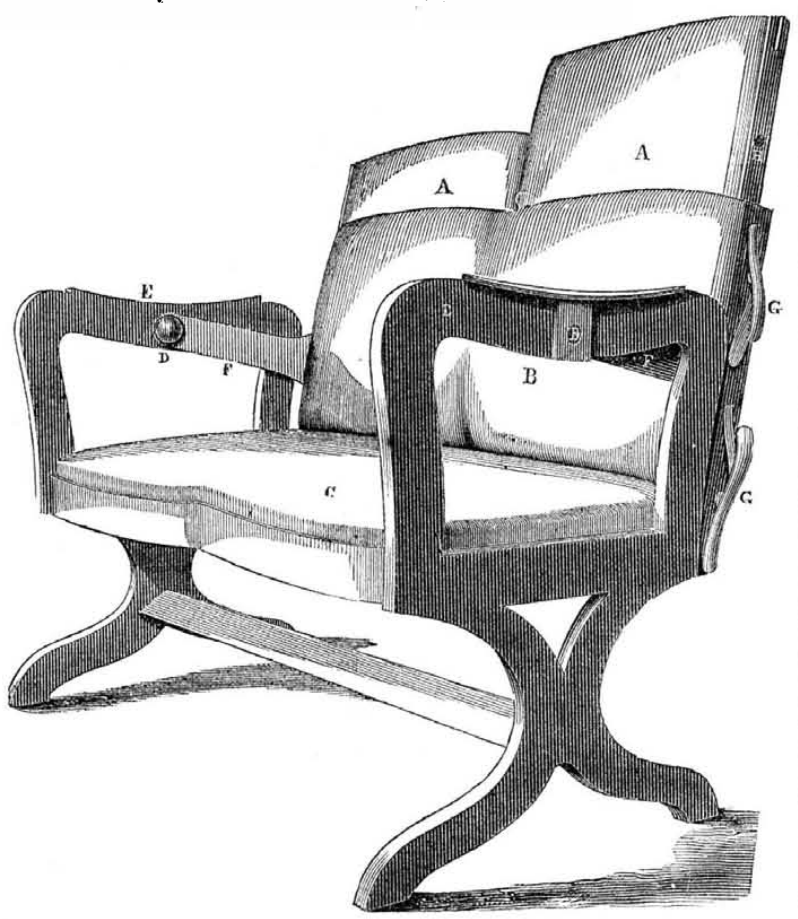
On Wednesday, last week, an improved locomotive, built by the engineer, W. McQueen, at the Schenectady Locomotive Works, brought down a train of ten heavily laden cars, fram Utica, in 1 hour 50 minutes—distance 78 miles.

The first Swedish railway is about to be constructed. The line adopted is that through Koping, Oreboro and Hult, which, while it will connect the two great lakes, Malaren and Wenern, will form part of a great trunk line between Stockholm and Guttenburg.

The True Scientific Inquirer.

Here what Sir Humphrey Davy says respecting the qualifications of an inquirer after scientific truth:—His mind should always be awake to devotional feeling; and in contemplating the variety and the beauty of the external world, and developing its scientific wonders, he will always refer to that Infinite Wisdom through whose beneficence he is permitted to enjoy knowledge. In becoming wiser he will become better; he will rise at once in the scale of intellectual and moral existence; his increased sagacity will be subservient to a more exalted faith; and in proportion as the veil becomes thinner through which he sees the causes of things, he will admire more the brightness of the Divine light by which they are rendered perceptible.

PATENT RAILROAD CAR SEAT.



The accompanying engraving is a perspective view of an improvement on railroad car seats, invented by A. B. Buel, of Westmoreland, Oneida Co., N. Y., and for which a patent was granted on the 11th day of last month, (May 1852). The nature of the improvement consists in attaching to the backs of the ordinary car seats outer sliding backs which may be raised or lowered as required. The figure is a view of the common railroad chair; it has two backs, the one of two section backs, designated by A A, and the other B; both are stuffed; C is the cushioned seat; E E are the cushioned arms. The backs are hung on pivot axes, D, (one not seen) by arms, F F, to allow the backs to be swung over in the usual way. The sliding backs, A A, are made to slide up and down in grooves, which are made in each side of the fixed lower back, B. There are a number of small recesses, H, in the edge of each sliding back; these recesses are for the purpose of receiving the catches, G G, which retain the said sliding back in the position which it may be set. These catches are made to vibrate on fulcra. By pressing with the hand on the lower part of one, the head which has the catch on its inner face is thrown out of the recess in the edge of the sliding back, and then the back can be raised up or pushed down to the height desired, when the catch is allowed to pass through the opening in the flange of the lower back, and into a recess in the sliding back, and this retains the said sliding back in its place. This makes a very compact car seat, with a back equal to a high backed chair. It is therefore a very good and comfortable improvement, and will enable passengers to sit and lean back with a sensation of pleasure never before experienced in a railroad car, and two persons sitting on the same seat, who may choose to have their seat backs at different elevations, can be accommodated to their hearts' desire.

The devices are simple and will be understood by every one who reads this. More information about rights, &c., may be obtained by letter addressed to the patentee.

Straw as a Covering.

Clean straw is an excellent covering for many things; thousands on thousands of sea kale in frames or under hoops have no other blanching material; and how clean they grow in it! Rhubarb, in winter forcing and early spring, grows beautifully pinky. It is well known that early spring frosts destroy rhubarb; but if a six inch layer of straw is put on every crown, as the heads put up, they raise the straw with them, and it not only gives the stalks a better color, and makes them less "stringy," but it keeps the leaves from growing too large. No wind will blow it off, nor will the most intense frost injure the plants. Straw should not be looked on as a mere litter; it is as good as a frame upon a large scale. What sort of eatable strawberries would we have without straw? In summer, every crop, such as gooseberries, currants, and many other things, should have the protection of straw, which keeps the sun from drying up the surface, and the surface roots damp and cool, while all weeds are kept down. Market gardeners used it for their frames—it matters not whether for cucumbers, melons, or potatoes, straw is their covering—and their crops are more secure than when protected by a thin mat, But some may object to the use of straw, on account of the litter it makes in a garden; but if any of those who object to its use for this reason, will just take a peep into Covent Garden market at any season, they cannot fail to be struck with the quality of the produce, in the raising of which straw plays an important part. Straw is also the best of all manures for a strong retentive soil, when it is dug in fresh, as it decays and leaves innumerable worm-like holes which act as drains for the roots.—[Gardener's Chronicle.

English Observatory.

The observatory at Greenwich, England, is fairly placed in connection with the electric wires, by an arrangement with the Southeastern Railway. Instantaneous astronomical observations may be now undertaken in remote sections, clocks be regulated by national time, differences of longitude be ascertained with exact promptitude; and, by means of the sub-marine telegraph, European skill may be connected with the efforts of British science. Wires may soon be carried over the Rhine and the Elbe, to connect with Calais, Dover, London. Perhaps thence to America; who knows what is to be?

Medical Science.

EXTRACT OF SUMACH.—Dr. Elmer, in the last number of the Eccletic Journal of Medicine, gives the following as his experience with rhusine:—

This is obtained from the leaves of the upland sumach. It is prepared by percolation with spirits rectificatus,—specific gravity 0·830. The solvent is washed and displaced by means of a vacuum apparatus. The rhusine is then precipitated and washed with aqua distillata, dried on filter cloth, in an airy, dry room, and reduced to a fine powder.

Medical properties and uses.—Tonic, astringent, and anticeptic.—In the treatment of diarrhœa, dysentery, and bowel diseases generally, rhusine is a remedy of great merit, and seldom disappoints the expectation of the physician. Its action as a tonic is peculiar to the mucous membrane, while its astringent effects are mild, yet sufficiently active for the cure of the above diseases. It must not be forgotten, however, that in all cases of diarrhœa, and dysentery, the exciting cause must first be removed; and no remedy is of more value, in fulfilling this indication, than the leptandrin. The most successful treatment is as follows: Leptandrin is given in doses from one to two grains, every two to four hours, till a cathartic effect is produced. The rhusine is then given in doses from one to two grains, every two, three, or four hours, according to the severity of the case.

The concentrated semi-fluid preparation of the sumach contains all the essential properties of this plant, in a convenient form, for the treatment of old ulcers, sores, putrid sore throat, bronchitis, sore mouth and throat in scarlet fever, mercurial salivation, etc.; for which it is an excellent remedy. Its medical properties are similar to the resinoid principle, but it contains more tanic acid, and is therefore more of an astringent. It also contains the coloring and extractive matter. In diseases of the kidneys, putrid fever, etc., it has been used with favorable results. Dose, from five to ten drops. For a gargle, or external application, it may be diluted with alcohol.

BORAX IN EFFLORESCENCE ON THE FACE.—M. Vanoye, in these cases of red spots or efflorescense of the face, so often seen in the young otherwise in good health, states he has found washing them several times a day with Hufelane's formula, a most excellent remedy. It consists of borax two parts, orange-flower and rose-water, of each fifteen parts.

PLEURO-PNEUMONIA.—A Belgian paper asserts that a medical gentleman named Williams has discovered that the fatal consequences of pleuro-pneumonia can be averted by inoculation. He has practiced the system for a long time with success. A commission has been issued by the Belgian government to enquire into the subject. The disease for which this system is stated to be a preventive, has been very fatal in Europe last winter.

CEPHALIC SNUFF.—The following has proved itself highly valuable for catarrh:—

Take black snuff—one ounce. Pulv. Squills—one drachm. Mix. Use three times a day. Care must be taken not to become habituated to the snuff, or the cure will be worse than the disease.

TO PRESERVE OUT-DOOR WOOD-WORK.—Boil together 1 gal. coal tar, 2½ lbs., sulphate of zinc, and lay it on hot.

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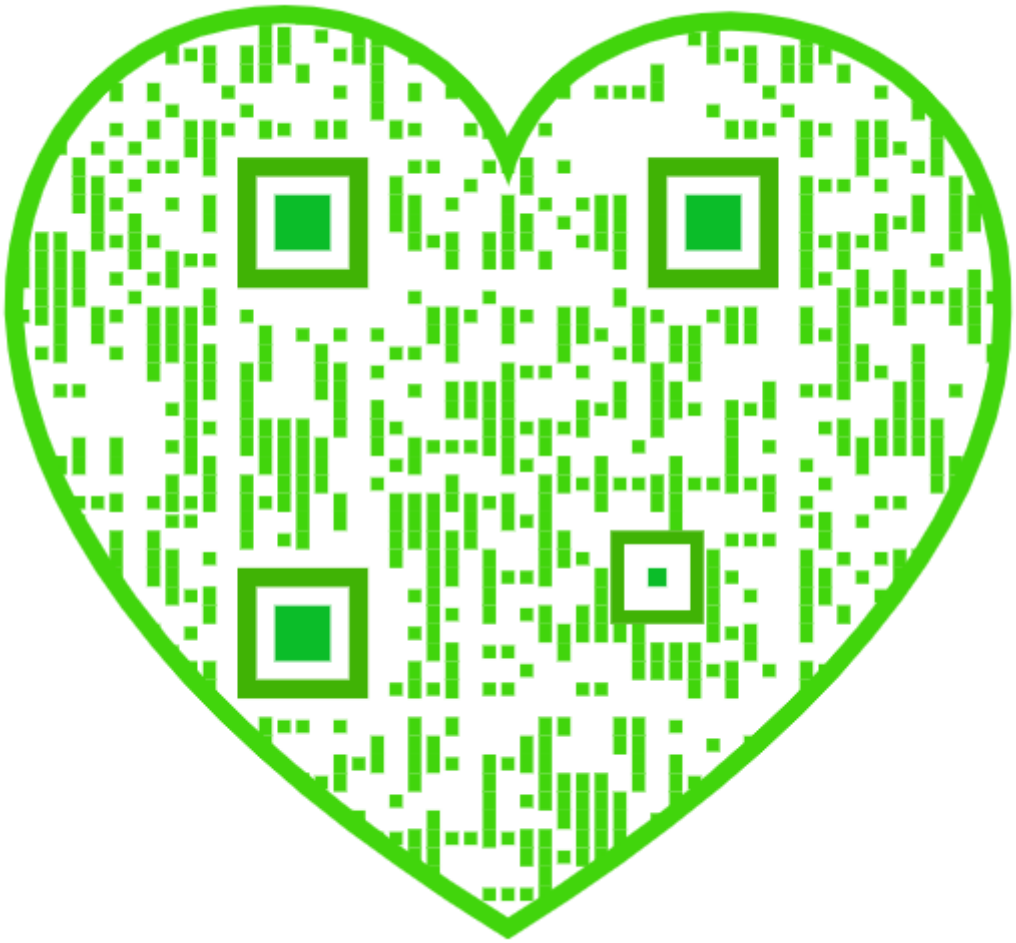

MISCELLANEOUS.

The Food of Man.

Bayard Taylor, now travelling in Africa, presents a very different opinion upon the vegetable and meat-eating natives, than that which vegetarians promulgate; they boast of the superiority of the rice and milk eaters. Taylor boasts on the opposite side of the road. Here is what he says:—

"The scenery of the Nile, southward from Shendy, is again changed. The tropical rains, which fell occasially at Abou-Hammed, and scantily at Berber, are here periodical. and there is no longer the same striking contrast between desert and garden land. The plains extending inward from the river, and covered with a growth of bushes and coarse grass, which also appears in patches on the side of the mountains. The inhabitants cultivate but a narrow strip of beans and dourra along the river, but own immense flocks of sheeps and goats, which afford their principal sustenance. I noticed a new kind of grain called "dookhu," of which they plant a larger quantity than of dourra. It is a germinaceous plant, somewhat resembling "timothy grass," but with a larger head and heavier seeds. They make from it a coarse, black bread, which they say is more nutritious than wheat. Mutton, however, is the Ethiopian's greatest delicacy. Notwithstanding this is one of the warmest climates in the world, the people eat meat whenever they can get it, and greatly prefer it to vegetable food. The sailors and camel-drivers, whose principal food is dourra, are, notwithstanding a certain quality of endurance, as weak as children, when compared with an able-bodied European; and they universally attribute this weakness to their diet. This is a fact for lank Sylvester Graham to explain. My experience coincides with that of that of the Ethiopians, and I ascribe no small share of my personal health and strength, which the violent alternations of heat and cold have not shaken in the least, to the fact of my having fared sumptuously every day. If I had adopted a diet of rice and water, or bran and turnips, I should not be here to give this testimony."

Great Suspension Bridge.

There is about to be commenced, in the neighborhood of Dirchau, in Prussia, a suspension bridge over the Vistula, which will be unqestionably the largest that has ever been constructed in Europe. The United States alone possesses one of the like colossal dimensions. This bridge, over which will pass the railway of the State, will be 2,500 feet in length, and 63 feet in breadth, and will be supported by six pillars, at a distance of 500 feet apart, four of which will be fixed in the bed of the river. The construction alone of this colassal bridge will cost 7,700,000 fr., and the works to be erected on the two banks will amount to 11,400,000f., in all 19,000,000f. —[Exchange.

[There is a great mistake in the above paragraph. The greatest suspension bridge in America (Wheeling), is over 1,000 feet span, while the Prussian one is to be only 500 feet span. The whole of the bridge, however, is to be longer than the Wheeling one, but Telford's Bridge over the Menai Straits has a middle opening of 580 feet, and the Freiburg Bridge has a span of 870 feet, so these two bridges have greater spans than the Prussian one is to have. We have seen it stated that the Hungarian suspension bridge over the Danube, erected by J. Clarke, was the greatest work of the kind in the world.

A New Idea in Agriculture

The steward on board a United States steamer, in the Gulf, has produced several crops of excellent potatoes by the following mode of cultivation:—

"He procured a common 'crockery crate,' a bundle of straw, and a few eyes of the potato, and went to work farming it on board ship! The process for cultivating them is this:—Fill your crate with alternate layers of straw and the eyes of the potato, commencing at the bottom with a layer of about six inches in depth of straw, and then a layer of the eyes—the eyes being placed about two inches apart over the surface of the straw—then another layer of straw on the top. Keep the straw always moist, and in about two months you will have about $14 worth of sound, good potatoes of the 'first water.'"

Exposition of American Products and Industry.

For the first time since we have spoken of the American Institute Fairs and their management, in deserving terms, we have been honored with a printed circular, announcing that its twenty-fifth Annual Fair will be held in Castle Garden in October next. Articles intended for exhibition will be received on the 1st, 2nd, and 4th days of October, and the Fair will open on the 5th. We suppose, from the fact of our having received this Circular, that we are again in favor with the Institute. We have advertised it gratuitously every year, and shall continue to do so, with the full belief that our influence among the mechanics and inventors of the country tends materially to enhance the character of the exhibitions.

The Circular sent us contains this announcement:—"The American Institute has been the pioneer in movements designed to advance the manufacturing and mechanical interests of the United States, to improve its agriculture, and to improve the condition and elevate the character of its laboring men. It pledged itself, in its earliest address to the public, to stand firmly by these interests, and for a period of twenty-five years it has kept its faith with the public, inviolate."

Every word of which we sincerely believe to be without a shadow of truth, and exhibitors every year are numerous to testify to the fact. What has the American Institute ever done to deserve the patronage of American manufactures and mechanics? With the aid of Lord Ross's mammoth telescope, we imagine it would puzzle any man to discover any thing. The parallel between the management of this and the Maryland Institute, hitherto, is immensely in favor of the latter, as the published proceedings show. The scheme of the Crystal Palace, however, has infused new vigor—strange to say—into the concern, and the public may expect an exhibition this Fall never before surpassed,—they may also expect courtesy and attention from the managers—something which must not be omitted this year, or this may be the very last chance for them. Now, let us all unite together and give the American Institute a grand lift.

Fire and Water-proof Preparation.

Slake common stone lime in a close vessel, and when cool pass eight quarts through a fine sieve; add to it one quart of fine salt and two gallons of pure water. Boil and skim. Then, to every four gallons of this mixture, add one and a quarter pounds of rock alum, three-fourths of a pound of copperas, half a pound of potash, and five quarts of fine beach sand. This wash will now admit any coloring matter that may be desired, and may be applied with a paint or whitewash brush, in the same manner as oil paints. A writer remarking on the good qualities of this preparation for roofs, says,—"It looks better than paint, will stop leaks in the roof, prevent moss from growing, and when laid upon brick work will render it impenetrable to rain or moisture." A wash of this kind might be beneficially applied to the roots of houses, &c., instead of paints.

Death from Toothache.

The Poughkeepsie Press gives an account of a singular death in that place of a young man, apparently about 27 years of age. He came to that village, stopped at Cary's, and at the time was suffering under a toothache, swelled face, &c. He had a tooth extracted, but continued to suffer most horribly for a short time, when death ensued.

Coal Strata.

The parallelism of the coal deposits of Europe and the United States, is a favorite theme for investigators. At a recent session of the Natural History Society, at Boston, Prof. Rogers and Mr. Desor communicated some results which invalidate the conclusions arrived at by M. Elie Be Beamont, in his essay on the "Ancient Mountain Systems of Europe." According to our home authorities, the epochs of disturbance in the great Apalachian chain of this country and the anthraciferous strata of Northwestern France, are, dissimilar; an opinion contrary to the arguments of the French savans.

Lighining Protector for Telegraphs.

H. C. Turner, of Cheraw, S. C., has taken measures to secure a patent for an improvement in Telegraph apparatus to protect the magnet of a telegraph instrument from being destroyed or injured by lightning, as well as to enable telegraph operators to continue at work during the prevalence of atmospheric electricity, which often causes great trouble and delay in the southern latitudes. The principle of the improvement consists in having a medium connected with the ground and telegraph line, which will conduct electricity of great intensity, but not that of low intensity, as generated by the galvanic battery, thus carrying off the atmospheric electricity without interrupting the circuit. He employs two small brass cylinders, each of which has a wire running from a connection screw at the middle, while the circuit wire runs through. Each cylinder is separated at each end by a piece of ivory, or other non-conducting substance, and the only communication with the ground is obtained by some partial conducting substance, such as ground charcoal. With this, each cylinder is filled, therefore an intense electric discharge, is carried through this medium to the ground, and the magnet is protected. The invention is simple and new to us, and we understand it has been used in the Telegraph Office, at Cheraw, for two months, with complete success. It is constructed on scientific principles.

Comets and Planets.

We do not know what will have to be done with all the comets and planets. Every few weeks we hear of a new comet being discovered, and no later than the 29th ult., Prof. Bond, of Cambridge, Mass., discovered another. In the early part of April it approached close to the earth's orbit. It goes at a tremendous speed, running through 100 degrees of right ascension in 24 hours. Two small planets, "Irene" and "Eunomia," were discovered last year.

Maryland Mechanics' Institute.

The Fifth Annual Exhibition of the Maryland Mechanics' Institute will be opened in the city of Baltimore on the 4th of October ensuing, in the splendid new hall illustrated in No. 4 Vol. 7, Scientific American. The exhibition is expected to continue one month, and we have no doubt it will constitute an object of national attraction. Exhibitors are sure of meeting with respectful and courteous attention from the board of managers to an extent not very common among us, we deeply regret to say. We however hope for better things this Fall, and if we realize them, the credit will be due to the projectors of the anticipated Crystal Palace Fair. Inventors, Mechanics, and Manufacturers don't forget the Maryland Institute.

Brass Beadsteads.

The latest English advices state that there is a great demand for brass beadsteads of almost every description of make. At Birmingham they had on hand large orders for this branch of brass foundry. The brass bedsteads have, indeed, within the last two years but more especially since the great exhibition, become a very important item of export by Birmingham merchants, and appear to be eagerly sought for in the North and South American markets.

Milwaukie Water Works.

The Lake Michigan Hydraulic Company, of Wisconsin, are about constructing waterworks to supply the city of Milwaukie with water. The company has engaged the services of Theodore R. Scowden, present engineer of Cincinnati Water-works, to plan and construct the work. The erection is to commence next summer (1853), and to be forced through to completion with all possible vigor and dispatch. Mr. Scowden has recommended two pumping engines of 120 horse-power each, capable of forcing, in 24 hours, 7,000,000 gallons of water into a reservoir containing 15,000,000 gallons when full, which are to be elevated 125 feet above the surface of the lake.—There will be ten miles of distributing water-pipes laid for a beginning, varying in their bores from four to sixteen inches diameter. To insure a constant supply of water beyond any possible contingency that may arise, the pumping and attachments, with the reservoir, will be duplicated in every particular. No pains nor expense will be spared to make the work, in all its requisites, equal to any other of a similar character in the Union, at a probable cost of $325,000.

A Phenomenon in Hydraulics.

Buffalo, June 1.—This morning, about 8 o'clock, while the workmen were engaged in pulling down the walls of the Old Eagle Theatre, a portion of the back wall came down, falling into a pool or spring at its base, whereupon a column of water burst forth to the height of from 200 to 300 feet. So great was the force, that at the distance of 90 feet from the pool, Mr. Ladd, who was superintending the removal of the dirt, was thrown a distance of 15 feet, and lodged in a pile of bricks. The water crossed Eagle street, throwing down about 40 feet of fence surrounding Mr. Arthur's garden, and uprooting in its course several trees and shrubs in the garden, besides doing considerable other damage. Fortunately the torrent was somewhat arrested by a large pile of bricks on Eagle street, but for which more serious consequences would have ensued. Mr. Ladd, although not seriously injured, is considerably bruised.

[The above has been denominated a phenomenon in all the papers in which we have seen it published. It is easy to account for all that was done; the falling of the wall—its gravity—was the cause of the water being forced so high and with so much power.

The Profits of Patents.

The following will give some idea of the profits derived from the Woodworth Planing Machine during the twenty-four years the patent has existed:—James G. Wilson has received, in sales, assignments, and tariffs, $2,131,752; John Gibson, of Albany, has received nearly as large a sum; Charles Gould, of Albany, has also received a very large sum. Gibson, it is said, is in the receipt of $1 for every 1000 feet planed in 100 mills, each of which turn off 10,000 feet each day. —[Pamphlet on the Woodworth Patent.

Immense Contract.

A contract for building the Terre Haute and Alton (Ill.) railroad has been entered into by Messrs. Willis Phelps, Wm. Mattoon, and James Barnes, of Springfield, Mass. This road extends 175 miles, entirely across the southern part of Illinois. These gentlemen have contracted to build the road, furnish the iron, build the depots, cars, locomotives, &c., putting the entire road in running order within three years, for the round sum of three million of dollars. The route is comparatively an easy one, and it is believed that the road will be completed within two years.

Coffee.

The production of coffee in Brazil the past year, has been 1,700,000 bags, or 272 millions of pounds. In 1820, the production was 15 millions of pounds.

Among the recent discoveries at Nineveh, one coffin contains the body of a female of the royal line. Many of her garments were entire, as were the gold studs which fastened her vest. The most singular discovery was a mask of thin gold pressed upon the face, so as to assume and retain the features of the deceased.

The British Admiralty, always alive to the exigencies of the sea service, have published full directions for signal lights to be carried by all British vessels at night on the ocean and which, being worked uniformly by a code, will render collisions nearly impossible.

Gen. Pierce has been nominated by the Democratic Convention assembled last week in Baltimore, for the next President. The next election will be an exciting one.

The average duration of life among Prussian doctors is 34 years. There are few old doctors living.

Carbonate of lead is said to be excellent for burns.

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(For the Scientific American.)

Ventilation.

It is said of some of the western African tribes, that when the headsman appears, scymeter in hand, in order to fulfill the behest of his king in furnishing the annual number of victims for sacrifice, the unfortunate subject at once throws down whatever implement he may, at the moment, be engaged with, and submits, without effort for defence or escape, to his doom.

Just so it is with us upon the subject of ventilation: we make no effort to escape from the disease and death by which we are surrounded in our dwellings—in our schools—in our meeting houses—in our lecture rooms—in our rail cars, and vessels; not so much from want of apprehension of our danger as from the circumstance that, like the poor African subject, we have never been taught that we *can* escape our doom; we have never seen one who has escaped.

Hitherto every one has had his own mode, and the consequence is, that "ventilation" has become a word without meaning. Even hot-air people, who are sowing disease broadcast over the land, have of late years, since the word has become popular, called their operations "ventilating!"

What is ventilation? In my humble judgment it means comfortably living within our habitations—in all climates—at all seasons—night and day—in an atmosphere as pure as we find it outside of our dwellings—or else it means nothing.

We have all heard—our fathers and grandfathers have all talked about doors and windows, cracks and crevices, perforated plates, and glass in windows—valves at the floors and valves near the ceiling—registers in chimney-funnels—up high—down low—upward ventilation and downward ditto—hot air, cold air, and mixed—and a thousand other modes of ventilation. But is there really such a thing at this moment, in existence in any country, as a ventilated building? Can you or any of your correspondents point out one?

Ventilation is of two kinds—mechanical and spontaneous or natural. The first we have nothing to do with, because it can never be made available to the "million," and if it could it is in just as faulty a state as the other. To exemplify the subject, and make myself the more readily comprended as to what I mean by ventilation, I will select a medium with the operation of which, as it can be seen, everybody is familiar—water.

Now suppose we have a forty feet square house, built perfectly tight, as every house should be, and full of water, and a stream running into and through an aperture made in the attic, say 3×2=6 feet; and suppose we have an aperture through or on a level with the cellar floor, which will let the same quantity out, and whence it will run freely away. Now suppose this water to be air, and suppose a house could be so constructed as to keep up this flow unceasingly—this is what I should call ventilation. It is easy to perceive that whilst our house would be kept perfectly full of water, yet there would be no perceptible local current—it would gradually settle down unperceived by the inmates, and every particle of air would, in about every hour, or less, be removed entirely out of it—together with all the miasm engendered within the building during that time. If for any reason we should want the water warmed, it could be done by erecting machinery at its place of ingress, and before its distribution through the various apartments. Let us then do just so with the common atmosphere. Air has precisely the same attributes, and is subject to the same laws, and can be made to operate in the same way, as water. Like water it is a fluid—it has weight—it has inertia. Air will boil by the application of heat—it will naturally take a downward course—seeking the lowest place in regard to any body with which it may come in contact which is of less weight, bulk for bulk.

I have been led to make these general remarks upon this all-important subject, at this time, in the hope that they may assist in arresting the further progress of error, and induce a thorough investigation of the whole matter by some of your numerous scientific readers, to the end that one universal system may be discovered; and thus put at rest once and forever, the never ending suggestions of expedients which only tend to lead us further astray.

What I call ventilation is a thoroughexpulsion of every particle of old and mephitic air, and the substitution of that which is pure; and this continued and carried on in all climates—in all weathers—in every habitation of man, without doing violence to any of our senses, and with economy as regards our means.

I take it for granted that the secret, when discovered, will be found to lie in the construction of the building. There is, I am sure, a principle—a universal law, by which this great desideratum may be attained, and when once discovered and practically carried out, it will at once restore the original meaning of the word "ventilation." H. Ruttan.

Coburg, C. W., June 1, 1852.

Wave Line Theory in Ships.

Messrs. Editors—In the Scientific American of May 15, 1852, you interrogate naval architects concerning the correctness of certain extracts from a lecture recently delivered in London by Scott Russell, upon the subject of nautical architecture. In answer to the inquiry, allow me to say that the *eye* and the *model* have been the only channel through which improvements have been conveyed in the United States for the last forty years. American shipbuilders have never adopted any theory having for its basis mathematical inquiry—however near they may have approximated the theory of wave lines, in the determination of shape for their ships, it has (without a single exception) been the result of observation condensed into rotundity on the model, by the aid of the eye. The wave-line theory is regarded by ship-builders in this country as being but a partially developed system,—the merely determining the form of any line (or parallel line) of flotation does not define the shape of the vessel; and beyond this we have never learned that any arbitrary law, or tangible rule has been adopted, even by Mr. Russell himself; hollow water lines on both ends of the model have been built for thirty years in this country, and I have in my possession French drawings of vessels which have been built from, and which are from thirty to forty years old, with a large amount of hollow in the water line, both forward and aft, and but for their limited length, would rival our clipper ships of the present time: here was the great secret of success the French enjoyed in their navy history over that of the English, in point of speed, until recently. The yacht America is but an approximation to the theory of Mr. Russell; and if in her determination of shape a theory has been resolved—a problem has been solved—it is of American and not English origin. I speak advisedly when I say that her builder knew nothing of the theory of Mr. Russell when her model was made, and having investigated her peculiarities, I know that they do not conform to the theory of wave-lines as discovered by Mr. Russell. Very respectfully yours,

John W. Griffiths.

(For the Scientific American.)

Heighth of Waves at Sea, their Appearance and Effects.

Seeing an account, a few days ago, in the Journal of Commerce, about the heighth of waves, &c., it at once appeared to me the information was not derived from the proper source to be published in this enlightened age, for no person of true science would assume to know and give the depths of waves alone, without giving the terrific action and appearance of the ocean, when the tempestous blasts and billows are at their heights, the latter being far the most magnificent and interesting. Their is no class of seamen more exposed or experienced than whalemen, in rough weather and stormy seas; other classes seldom "lay-too" long enough to weather out a storm, which commonly lasts three days, in seas termed "outside of land." The first day of the gale there is a short cutting sea with numerous white caps seen in every direction, a spray now and then dashing violently over the bows, and appearing very much like a severe storm on Lake Erie. The taking in of light sails, lowering of yards, lashing and securing boats, bolting down the hatches, &c., are characteristics of the first day. Before dawn of the second day, the large sails are all furled, and the storm sails set, which consist of two or more small sails, one at each mast close to the deck, which serve to keep the ship steady. The ship is now "laying-too," the helm is lashed, and the watch on deck takes refuge on the weather quarter. The seas now assume every variety of shape, the entire surface being covered with white foam, tossing, boiling and hissing, every sea threatening to overwhelm the ship, and frequently appearing on a level with the topmast head, and cannot be less than forty feet high. The best sea legs on board cannot now cross the deck without grasping and holding with the hands. The gale is now blowing so severe, that an old sailor told me I could not go upon the weather rigging without creeping between the flaws of winds; here was every chance for exerting strength with hands and feet. I tried, and found his statement correct. Without giving any account of the terrors or dangers of each night, or of wearing-ship, I will go to the third day, the wind continuing from one point. The seas at this time are running parallel with each other, and are much heavier and broader than the day before, being perfectly smooth, of a deep blue color, and very uniform, many of them forming one vast billow, reaching from horizon to horizon, and running at the rate of twenty miles per hour. About every eighth sea is much larger than the rest, and assumes a lofty and terrific appearance, and finally curls and breaks, actually overtaking the billow in advance, and using it as a ground floor to roll upon, leaving a white scroll of foam across the ocean far as the eye can reach, and making a noise like the roaring of distant thunder. This sight has never yet been pictured by the hand of an artist; a skiff may now ride in perfect safety on the intermediate seas, but the staunchest ship ever made, cannot get a blow from one of these breakers, without getting more or less injured. During a voyage of twenty-three months in the ship Candace, of New London, we were in several of these storms, and only on one occasion one of these seas broke square on us. We were rising out of the troughs of the sea, when the breaker, as it were, dropped down on us; the third mate gave the alarm, the top ridge was seen curling down, midway between the fore and fore-topmast yards, a distance of twenty-five feet from the deck. This sea, pressing downwards, washed the men in a wedging form, some under coils of rigging, others between the pumps and behind the spars, and some with difficulty withdrew themselves from the crevices they had been forced into. This sea broke the starboard bulwarks fore and aft, breaking fifteen white oak stauncheons ten inches square, short off, parting the iron of the main chains, sweeping two valuable whale-boats, davits, lashings and all, by the board, and leaving us a wreck for several days. Counting the body of the ship ten feet out of water, and that it had risen five feet from the bottom of the trough, it would leave a sea of forty feet.

During the same voyage, in the Indian Ocean, we saw a large class merchantman to the leeward of us; it was not then blowing strong, but a very heavy sea was running; our captain chose to run down and speak her, she was sailing on the wind and starboard tack; when getting on a line with her course we luffed on the larboard tack, which left her on our starboard one point, and about 600 yards distant. Both ships were now nearing each other, and both settled down in the trough of the sea simultaneously; the merchantman, evidently alarmed at our near approach, ran off two points, this caused her to follow nearly in a line of the trough of the sea, and her entire masts were entirely out of sight at least twenty seconds. Both ships came up side by side, one sea distant, and spoke each other. The merchantman was full rigged, having royal masts and sails set; her mast, from the top of main royal, was judged by the officers and crew to be ninety feet to the main deck, her body out of water ten feet, her masts inclined 45 degrees, would leave a sea of fifty feet; this caused much wonder, even to the old sailors, it being a sight seldom seen, and was witnessed by the whole crew of 34 men, at the dog watch, at 6 o'clock in the afternoon; this sight cannot be witnessed only on like occasions. C. R. M. Wall.

A Wonderful Man.

Richard Arkwright, it would seem, was not a beautiful man,—no romance hero with haughty eyes, Apollo lip, and gesture like the herald Mercury; a plain, almost gross, bag-cheeked, pot-bellied Lancashire man, with an air of painful reflection, yet also of copious free digestion; a man stationed by the community to shave certain dusty beards in the northern part of England, at a half-penny each. To such end, we say, by forethought, oversight, accident, and arrangement, had Richard Arkwright been, by the community of England and his own consent, set apart. Nevertheless, in strapping of razors, in lathering of dusty beards, and the contradictions and confusions attendant thereon, the man had notions in that rough head of his; spindles, shuttles, and wheels plying ideally within the same, rather hopeless looking, which, however, he did at last bring to bear. Not without difficulty! His townsfolks rose in mob round him, for threatening to shorten labor,—to shorten wages, so that he had to fly, with broken wash-pots, scattered household, and seek refuge elsewhere. Nay, his wife too, as I learn, rebelled; burned his wooden model of his spinning-wheel, resolute that he should stick to his razor rather,—for which, however, he decisively, as thou wilt rejoice to understand, packed her out of doors. O reader! what a historical phenomenon is that bag-cheeked, pot-bellied, much-enduring, much-inventing barber! French Revolutions were a-brewing; to resist the same in any measure, imperial Kaisers were impotent without the cotton and cloth of England; and it was this man that had to give England the power of cotton.—[Carlyle.

[And this is the man who, according to the opinion of the "New York Daily Times," could not be *a true man*, because he took out a patent, and did not look to *the gratitude* of his fellow man, as satisfactory remuneration. It is to him we are indebted for our cotton manufactures, which the said paper wants protected by a patent tariff, not to the men who invented or introduced them, but who merely conduct the business. Samuel Slater, who introduced the cotton manufacture by machinery into our country, learned his trade in Arkwright's mill, in Derbyshire, England. Those men who opposed Arkwright were furious against patents, ignorantly, no doubt, but still furious like many in our own day. They would have tied Arkwright to his razors and soap brush, rather than have given him a patent. There is no general gratitude in the hearts of men to such benefactors of our race as inventors, but Richard Arkwright lived to be the richest commoner in England; he had his reward, and was greatly assisted in attaining it, by such men as the grandfather of our Robert Dale Owen, viz., David Dale, of Glasgow, a benevolent and christian manufacturer, who encouraged and cheered Arkwright by his respect for his patent rights.

American Corn in Jerusalem.

The Sabbath Recorder, speaking of Indian corn in Palestine, relates the following story:

A traveller in 1849 felt a strong impression to take a beautiful twelve rowed ear of Indian corn, that was presented to him by a friend, from the country; and he put it into his trunk, intending to drop some of its grains in some opportune spot. When they arrived at Meshullman's hotel in Jerusalem, and after he had told them of his efforts in agriculculture, and found that the friends were Americans, he said, one day:—"In 1825 I travelled in the United States, and visited Philadelphia in the summer; and at dinner had a mess of sweet green-corn—what was called *hot corn* by the servants. Since I have turned my attention to planting, O, how often I have wished for one such ear of corn to plant in my fatherland." The friend listened, and as he said this, impulsively went to a trunk, fumbled hastily to the bottom, and produced his ear of corn, exclaiming: "Now I know why I had to bring this ear of corn with me; take it, for it must be for you;" and related his impression of mind. Meshullman thanked God aloud before them and said: "Yes, surely it was the heavenly Spirit from God that put it into your heart to bring it so far; for none but He knew how greatly and often I had desired to obtain some. I never saw so large a one as this."

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NEW INVENTIONS.

Cotton Press.

A. M. Glover, of Walterboro', S. C., has invented an improvement in Cotton Presses, for which he has taken measures to secure a patent. The nature of the improvement consists in operating the follower by means of a rack and pinion, the rack being so adjusted to the follower as to cause the pitch line of the cogs to be as near as possible over the centre of the bale, which is to be pressed. A roller is employed in connection therewith, it being placed at the lower end of the follower, and the side opposite to that on which the rack is attached. By this arrangement a double rack is dispensed with, and the follower made to descend vertically and press evenly upon the bale.

Raising and Lowering Tops of Carriages.

W. S. Hoyt, of Ithaca, Tompkins Co., N. Y., (a place famous for carriage-making) has taken measures to secure a patent for an improvement to raise and lower the tops of carriages, &c. He attaches a curved lever to one of the arms of the upper joint, which lever passes within the top, whereby a person, by operating the lever—it being a handle also—may raise or depress the top without rising from his seat, and this he can do with the utmost facility and ease.

Improved Eye for Mill-Stones.

Edmund Munson, of Utica, N. Y., has invented an improvement on the eyes of mill-stones, for which he has taken measures to secure a patent. The nature of the invention consists in having the lower portion of the eye of conical form, the eye being constructed of metal, and having spiral flanches within it, which are constructed and arranged in such a manner, that the eye is prevented from choking, and a current of air is made to pass into the eye and between the stones.

Improvements in Papier Mache.

Charles Bielefield, a papier-mache manufacturer of London, has invented some very great and important improvements in the making of different kinds of articles out of papier-mache. He makes the substance, not out of paper, as has been heretofore practiced, but out of cotton rags, the substance of which paper is made. Picture frames having the appearance of the finest carved work, and resembling oak, mahogany, maple, bronze, &c., likewise panels, partitions, pillars, and great slabs resembling the finest marble, are made out of old rags. These preparations are waterproof, and sound proof, and they will stand any climate without cracking or warping. They can be cut, filed, sawed, planed, turned in a lathe, nailed, screwed, and are bad conductors of heat, therefore they are excellent for both hot and cold climates. He has lately had the fitting up of the interior of a new steamboat for the Pacha of Egypt; wood, and other ornamental work, not being able to stand the dry climate of that country. It is the intention of the inventor to make slabs of his material, for the walls of houses, as a substitute for stone and iron. The blocks can all be moulded to fit into one another, so that they can be carried to any distance and then fitted up with screws.

Improvement in Shafts of Water Wheels.

W. G. Masterson and Alonzo Teer, of Amesbury, Mass., have taken measures to secure a patent for improvements on shafts for horizontal water-wheels. The wheel is attached permanently to a hollow shaft or tube which encases a stationary shaft; the hollow shaft being attached to the wheel, revolves with it and around the stationary shaft. At the top of the fixed shaft there is a socket which contains a ball, and in this socket the outer shaft revolves.

Spring-Space for Compositors.

E. C. Harmon, of Troy, Miami Co., Ohio, has taken measures to secure a patent for a spring-space, to be used by printers when setting up type. The inventor is a printer, and he employs the spring-space for facilitating the operation of forming spaces between words and for "spacing out," and correcting proof. This is a subject for printers.

WATER-SAVING OVER-SHOT WHEEL.

The accompanying engravings are a perspective view, fig. 1; a vertical side section, fig. 2, and a perspective of the bucket gate, fig. 3, of an improved Water-Saving Over-Shot Wheel, invented by Edmund Sheetz, of Cambellstown, Londonderry, Lebanon Co., Pa., and patented last November.

The improvement consists in the attachment of a self-acting gate to each bucket of an over-shot wheel, for the purpose of retaining the water in the bucket until it is carried to the lower part of the wheel, and thereby increasing the power and motion of the wheel. A represents the axle of the over-shot water-wheel; B are the arms; C is the frame of the wheel, lined on the inside, which lining forms the flooring or bottom of the buckets; D are the bevel buckets, supported by the frame, C, on each side; E are the screws or pivots upon which the frame of the gates operated. F are the gates; each gate swings upon its own frame, G, and is open at top as the wheel revolves, and the water passes through into the bucket. The gate rests upon the inclination

Figure 1.

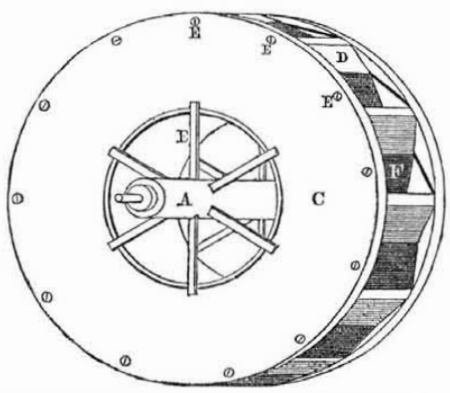
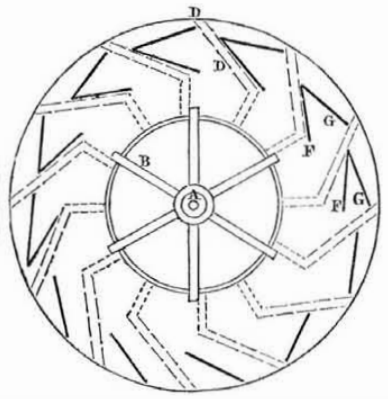
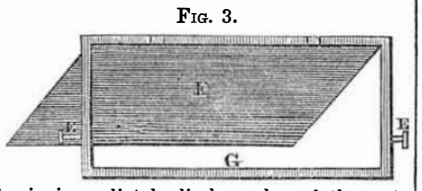


Figure 2.



of the bucket, until the bucket is carried one-fourth round the wheel, when the gate closes, and rests against its own frame, G, and the water in the bucket pressing against the lower part of the gate, is retained in the bucket until it reaches the lower part of the wheel, when the gate opens by the pressure of the water against the top of the gate, and the water is immediately discharged, and the gate swings loose with its frame, until the bucket again reaches the centre, when the gate again rests upon the inclination of the bucket, and is open, ready to receive the water, at the top of the wheel. G are the frames of the gates, supported on each side, near the centres, by screws or pivots, E, inserted into the frame of the wheel. These frames, G, are changeable, and vary their angular portions with precision, according to the revolution of the wheel and the pressure of the water against the gates.

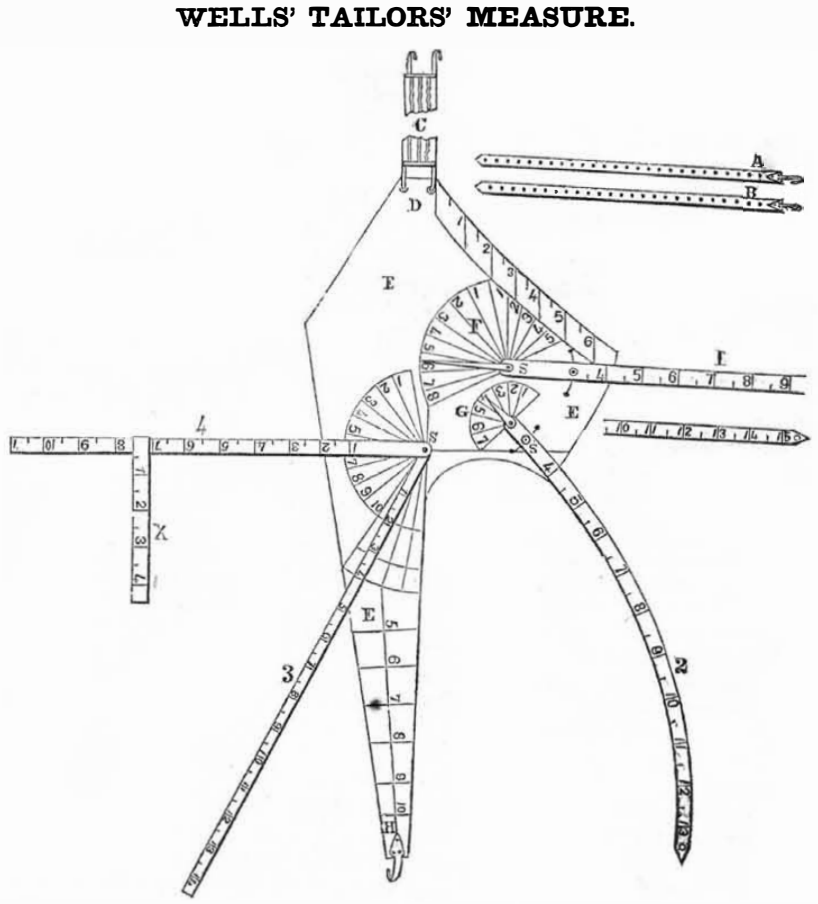
FIG. 3.



The claim is as follows:—I claim the self-acting gates attached to the buckets of an over-shot water-wheel, in the manner described and for the purposes set forth.

More information about rights, &c., may be obtained by letter addressed to the patentee.

WELLS' TAILORS' MEASURE.



The accompanying engraving is a view of the tailors' measure invented by W. T. Wells, of Shelbyville, Bedford Co., Tenn., for which a patent was granted on the 20th of last April (1852.)

The instrument is constructed and formed as follows:—it consists of some pliant substance, for instance morocco, which is formed so as to fit under the arm and lie upon the left breast, with a graduated scale on the front edge, and a graduated strap passing round the body under the arm, which is designated by the letters E. The graduated scale in front is numbered from 1 to 7. There is a graduated arc on the instrument, marked F; also a graduated arc marked G, both of which are in front of the arm when the instrument is applied to the body; there is a graduated arc marked K; No. 1 is a strap working upon a pivot on the centre of the circle, of which arc F, is a part, and it comes to a point at the edge of this arc, points out the degrees; this strap marked out in inches measured from the line horizontal with the lower part of the arm pit, commencing to number at four inches; this strap has also a stop screw at S, which passes through the main body of the instrument with a tap on the end, so as to screw it up and hold it firm to any point desired, there being a groove cut so as to let the screw pass freely in turning the strap on its pivot; there is also an eyelet hole in the extreme end of this strap; No. 2 is a strap graduated and measured as strap No. 1, and it works up a pivot on the centre of the circle of which the arc, G, is a part coming to a point like No. 1; S is a screw on it; No. 3 is a graduated tape working on a pivot in the centre of the circle of which arc, K is a part; No. 4 is a metal strap working upon the same pivot as No. 3 works. It is graduated in inches, and a graduated scale, X, works upon it at right angles. On the arc, K, there is also a set screw, S, when screwed up it holds the straps No. 3 and 4, in any desired position; D are two eyelet holes; H is a hook upon the end of the graduated strap, E; A is a strong strap with holes in it, and it has a hook at one end; B is a like strap; C is an elastic strap with two hooks at each end; these straps, A, B, C, are made separate from the instrument, and only connected with it when measuring; E is a piece of morocco leather.

The instrument is applied as follows:—The strap, B, is first hooked around the body, so as to rest upon the points of the hips. Strap A is hooked into strap No. 1, by means of the hook, and then the instrument is all ready to be applied. It is then placed upon the left breast, so that the graduated strap, E, passes under the left arm. Strap No. 1 is then passed over the left shoulder round the back of the neck and passing over the right shoulder in front, then under the same, and hooked to graduated strap, E, and passing from arm pit to arm pit. The strap, C, is hooked into eyelet holes, D, and the two hooks on its other end hook into the right breast of the person's coat, so as to hold the instrument firm.—When the instrument is applied to the body, the strap, No. 1 shows the distance from a line horizontal with the arm pit to the socket bone or centre of neck, at the same time pointing out the degree on the arc, F; to ascertain the depth of *cye*, measure from the lower edge of the strap, No. 1, at socket bone to the top of strap, E. To get the first waist or top of hip, measure to the lower edge of strap, B. Strap No. 2 passes over the left shoulder and width of back to the top of strap E, at the same time pointing out the degree on the arc, C, which measurement gives the width and size of the shoulder strap; No. 3 is for the purpose of measuring under the left arm to the socket bone at lower edge of No. 1, also to measure to the centre of the back at the upper edge of strap E, and to measure across the blade bone to the centre of the back, at which measurement it shows the degree on the arc, K; No. 4 hangs down the side and is placed so as to make slide X parallel with the lower edge of the strap, B, showing the angle on arc K, and distance to the top of the hip; this strap or scale, when adjusted, forms a pivot at strap B, from which to measure to get the centre of the back at first waist, and by means of No. 3, and the measures of No. 4, the coat is measured in the back. The height of the *gorge* is obtained by the graduated scale in front of the instrument. After taking all the measures and noting all the distances, and the angles, and the degrees shown by the several straps, take the instrument off, and detach straps A and C, then lay the instrument on the cloth, set it to the same angles or degrees ascertained in measuring, also the distances, and then lay off and cut according to the said angles and distances, and thus the marked diagram will be transmitted to the plain surface with the utmost harmony of all the parts. A book of diagrams and explanations accompanies each instrument. More information may be obtained by letter addressed to the patentee at his residence mentioned in the foregoing.

The Quadrature of the Circle.

John A. Parker, formerly a merchant of this city, has discovered, it is said, the true quadrature of the circle, and has published a book to demonstrate it. This has been a fertile subject for the busy brains of many mathematicians, the whole of which has resulted in complicated incomprehensible demonstrations. The Quadrature of the Circle has been discovered a great number of times.

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Scientific American

NEW-YORK, JUNE 12, 1852.

Judiciary System of the United States.

We have now before us a petition which is to be presented, in a short time, to the Senate and House of Representatives, praying for a reform of the United States Judiciary System. The reforms embraced in the petition are, 1st, "the election of Judges by the people for a limited number of years. 2nd, a law prohibiting the issue of a writ of injunction unless the complainant shall first give security to indemnify the defendant for all loss and damage. 3rd, that the defendant may stay or raise the injunction on giving like security. 4th, and that all issues of fact, both in equity and law, shall be tried by jury."

The reasons set forth for such changes in our Judiciary system are of a very peculiar character: the Judges are appointed for life, and it is said they have assumed power over both law and facts, in granting injunctions without trial by jury, and without adequate security to the party enjoined, all of which is contrary to the spirit and true character of our government, is of despotic origin, destructive of business security, and oppressive to citizens. We have expected such action for some time, although we have done nothing to bring the same about by personal effort. We supposed that some striking case would make the injured parties seek redress by legislation; and now the wedge is about to be thrust into the whole United States Judiciary system, as at present constituted and conducted. We cannot say that we advocate the electing of the judges, but we believe that their appointment for a limited number of years, and no re-appointment ever allowed, would be a judicious reform.

The great exciting cause of this action, at present, is the tyrannical disposition which has been displayed in some cases, by some of the judges granting certain injunctions contrary to sound legal authority.

In July, 1850, an able article appeared in the Southern Quarterly Review upon this very subject, namely, the granting of an injunction by Judge Wayne, against a patentee, without allowing a trial by jury. The petition before us has sprung up from decisions made by Judge Kane, of Philadelphia. He has granted injunctions without any trial at common law, when the conflict was between two opposing patentees, and he has judged as to facts and law both. This, according to Curtis (sec. 338—Note), is wrong; it says,—"where there are two conflicting patents, apparently for the same thing, the grounds of undisturbed possession on which injunctions are granted, cannot exist." It is our humble opinion that great good would be done to patentees and others, if our U. S. Judges would send every patent case to a jury, if the defendant desired such a trial. Our Judges are more despotic in their decisions than those of the English Bench. Sir L. Shadwell, Vice Chancellor, said "he did not recollect a case where a defendant had stated his wish to try the question at law that the Court had refused to give him the opportunity. This is very different language from that held by some of our Judges.

A great many patent cases are conflicts between opposing patentees, and the questions involved are those of infringement; now in every case of this kind it should at once be sent to be tried by a jury of competent men, and not left to the decision of the Judge; no injunction should be granted until a trial is had by a jury.

These are our opinions, and we are confident the expenses would be less to all parties, and for a certainty justice would be more sure, and there would be no room for accusing the Judges of partiality and making decisions prejudicial to the rights of any one party for the sake of benefitting another party.

The Reformed Patent Bill.

We have been informed that Senator Norris's Bill, to amend the Patent Laws, is expected to pass both houses and become a law in the course of a few weeks. We hope he has amended the Bill so as to strike out that absurd clause in reference to the products of patented machines. The new English Patent Bill provides for foreign propellers coming into English waters, also for ships using patent machines, they will meet with no obstruction in British waters; this is sensible, but while the people there are becoming liberal in such matters our statesmen seem to be going backward.

The Albatross Propeller- -Pirrson's Condenser.

This class of steamships is becoming more common on our waters, their economic qualities are beginning to be better understood. The city of Philadelphia has enjoyed a good reputation for building propellers; still, we have thought it strange that the only steamships sailing regularly between that city and Europe were built abroad—they are foreign steamers; we allude to "The City of Glasgow" and "The City of Manchester." A very fine screw steamship, named the "Albatross," built in Philadelphia, has come to our waters and become a New York ship. On Wednesday, last week, she made a trip down our Bay, with a number of invited guests, and we were happy to form a part of the company. This vessel is a beautiful craft, and has many new points about her worthy of consideration. The Albatross was designed and constructed under the superintendence of her owner, Ambrose W. Thompson, Esq., of Philadelphia, and she does credit to his inventive qualities. She formerly belonged to the line of steamers running between the cities of Philadelphia and Charleston, but the line has been discontinued for want of business. She has a propeller named "Thompson's parabolic propeller." It is geared to make nearly two revolutions for one stroke of the engine. The screw is of an *expanding* pitch. The speed on the trip was at the rate of about 12 miles per hour. She is fitted with the Patent Condenser, invented by J. P. Pirrson. C. E., of this city, and to this apparatus, for marine steamers we would desire to direct public attention. There is a great loss of fuel and a great wear of boilers, by the use of the salt water, which is employed by all our steamships. When the water in the boilers is saturated to a certain degree, the brine has to be run off; this involves a great loss of heat. In the course of time serious incrustations gather in the inside, and this involves a loss of heat also, as the scale is a non-conductor. The incrustations have to be removed every voyage, and the boilers cleaned out, and this involves another heavy expense. If pure water could be employed at sea, all the heat which escapes with the brine, and all the evils and troubles of incrustations would be saved and remedied. But how can this be done? To carry fresh water for a voyage would require huge tanks; in fact, the vessel could not carry enough to serve for one voyage of a few days. If we consider that all the water employed goes into steam, and this steam, when condensed, is pure water, whether made from salt or fresh water, the reflection arises,—why not condense the steam, and use it over again for boiler feed? To do this, salt water would have to be used for condensing, and it must be applied to the outside of the condenser, to cool the steam by radiation. This is the principle of this *condenser* for sea steamers. The principle is not new; but the manner of making it effective and profitable, as invented by Mr. Pirrson, is; and the saving of fuel, by its use, is over sixteen per cent., of coal. This has been fairly tested, in the Albatross, during the past year, in her passage to and from Charleston. The condenser is very compact, and does not occupy much room, and we cannot but desire that the owners of steamships would examine it with candor. We cannot describe its peculiar difference from that of Hall's, &c.; we have not room to do so, and, beside, every apparatus must be judged by its practical working—the only test of its utility and economy. There can be no doubt but an apparatus of this kind is much to be desired; the only questions to be settled, are those of its economy and working qualities; and upon the testimony of Mr. Thompson, the Albatross has resolved these questions in favor of a saving of sixteen per cent. of fuel and the prevention of all incrustations: the whole economy cannot be less than 25 per cent.; this is a geat gain.

The Crystal Palace.

This famous structure, which has to be removed from Hyde Park, is not destined to be torn down and broken to pieces like a potter's vessel; it is to re-erected and devoted to a noble object. It has been purchased for about three hundred thousand dollars, and is to be removed to an appropriate site, at Sydenham, near London. It is to be placed in the midst of a park of 150 acres, which is to be planted with a specimen of every tree which can be grown in the open air in England. The building is to contain a winter garden of 18 acres, filled with the choicest plants and flowers. There are to be sculptures by the chief living artists, and casts of the most celebrated works of antiquity. Geology and mineralogy will receive their appropriate illustrations; while specimens of the most striking costumes and manufactures of the various nations will be laid out, as at the time of the Great Exhibition. Not the least interesting part of this splendid spectacle will consist of samples of machinery such as those which were seen at work last year in the northern section of the building, when it stood in its full glory in Hyde Park. Had this building been made of brick, as was first proposed, it would have been nothing but a heap of rubbish when taken down; but it can be erected now as well as at first. This is a strong argument in favor of iron buildings. We have been informed that all the stock for the New York Crystal Palace has been subscribed. "Go a-head," gentlemen.

American Rifle Shooting.

Some time ago while commenting on rifle shooting, we stated, as is asserted in Mr. Chapman's work, that a first rate American rifle with a telescope, will throw *all its* shots at 220 yards into a circle of 1½ inches diameter, and at 440 yards into a circle of 8 inches diameter. "No European shooting, we believe, can compare with this."

The London Mechanics' Magazine, of May 15th, says, "yes it can," and quotes the following extract from the letter of an officer serving in the Caffre war:

"I have seen, I suppose 100,000 rounds fired from one firelock, and have seen the effect of Caffre fire to nearly the same amount, and I say that an old flint musket in the hands of a Caffre, who puts in about 6 drachms of powder, will kill a man at 800 yards; a regulation firelock, charged with 4½ drachms ditto, at 550 yards; a common rifle charged with 2½ drachms, with conical ball hollowed out at the base, will kill at 1,200 yards."

This we do not dispute, for our rifles can carry as far, but can any European rifles show such close shooting. In our last number we published the challenge of Mr. Sharp; it is open to the world, and will afford a good opportunity of deciding the merits of many rifles. Send over your Minie rifle, gentlemen.

A Yankee Tanner.

Some time ago we published an article from the London Mechanics' Magazine, giving an account of Mr. Laycock, formerly of Albany, N. Y., having taken out a patent in England, whereupon a cotemporary of last week, sputters out the wonderful piece of news of a *Yankee tanner*, formerly of Albany, but now of Doncaster, England, having taken out a patent, and gives the article as we published it. It happens, however, that he is not a Yankee tanner, nor did he follow the business of tanning in Albany. He is an English dyer by trade, who resided for some time in Albany, was not successful there, got a legacy left him in England, went back and now follows after the tanning business, with some Yankee improvements. How some people do keep posted behind in the news of the day.

Adamantine Candles.

We had supposed that the most beautiful stearine candles were manufactured at the West, but we have a sample of a block of stearine, and some candles before us, manufactured for George H. Folger, of Nantucket, by H. E. Rogers, of South Manchester, Conn., which surpass all the candles we have ever seen. Mr. Folger is a manufacturer of sperm and adamantine candles, and his candles sell at higher prices than others of the same kind, 35 cents per pound being received for them. They are white, like snow, very hard, and having tested their burning qualities, we find they are not liable to *run*, but burn clean and free from guttering.

Patent Business.

For a number of years we have been honored with the confidence of a large class of inventors, and have been solicitors for, perhaps, as many patents as any Agency in the world, and we think we may safely say that we have conducted *more* applications at home and abroad than any other concern, during the same period. Commencing May 4th, and ending June 1st, 1852, (4 weeks) 22 patents were issued to inventors, whose papers were prepared at this office. The whole number of patents issued during that period is sixty-three, —thus giving us a fraction over one-third of all the patents issued, and establishing a great preponderance in favor of the "Scientific American Patent Agency." Still, we believe that most, if not all of the respectable Patent Agents, in this and other cities, are doing a large business, and so far as we can judge, the season is prolific with invention.

A New Yellow Dye.

M. Guinon, an eminent dyer of Lyons, France, has succeeded in dying silk light yellow by means of "picric acid." His attention was first directed to the subject by noticing the yellow color which it imparted to the skin. This acid is made by him in the following manner:—Into a good stone-ware vessel, able to contain three times the quantity employed, are put three parts by measure of commercial nitric acid, which is heated to 140° Fah. The vessel is then removed from the fire and 1 part by measure of coal oil is added through an earthenware tube, tapering at its lower end, and dipping into the acid. Each portion of oil, on entering the acid, causes a violent re-action, heat being generated, and carbonic acid and nitric oxide given off; should the liquor threaten to run over, the addition of oil must be suspended, and the whole cooled with a little nitric acid. The oil is then all poured in, and when this is done the greater part is already converted into picric acid, but a portion yet remains as a reddish resinous mass. Three parts more of nitric acid are then added, and the liquid is boiled to a syrup. It must not be suffered to dry, or it will ignite with violence. The syrup thus formed solidifies into a yellow paste when cooling. This is then boiled in water for 20 minutes, and suffered to cool, when the picric acid forms in crystals on cooling, and the residue is nitric acid and some resin. It can be purified like all salts by repeated crystallization. To purify it perfectly it must be mixed with ammonia, and precipitated with hydrochloric acid, but this is not required for dyeing. Silk mordanted with alum and tartar takes a fine straw color by being handled in a weak solution of picric acid. It can be washed severel times, but it does not stand alkalies or acids, but it is a valuable color, as it endures the sun and air; it is well known that tumeric, which is used to color a number of yellows, cannot stand the sun at all—it fades in a few minutes.—Wool, if prepared with alum and tartar, takes a fine citron yellow. It stands washing very well, and also the sun and air. This acid does not give any color to cotton. It is an improvement in the use of nitric acid which has often been used to give a kind of faint yellow to a white silk.

Woolen Manufacturers Awake.

We understand that secret efforts are now being made in Washington to get a special bill passed renewing the patent of John Golding, of Dedham, Massachusetts, for an improved wool condenser, which was granted in 1826, and which has been in public use for twelve years. It is supposed, from the secrecy with which those interested have moved, that many members of Congress have been brought to favorable terms, and that the bill may pass very quietly, and then the woolen manufacturers will have to look out. There can be no doubt but the President will veto the bill if passed, if his attention be called to the subject, as he his an old woolen manufacturer, and would see at once that the bill was for oppressing, not advancing, improvements in the arts, and therefore unconstitutional. It is believed that a number of crafty lawyers are at the bottom of this scheme; but we believe they will be defeated in their reprehensible schemes.

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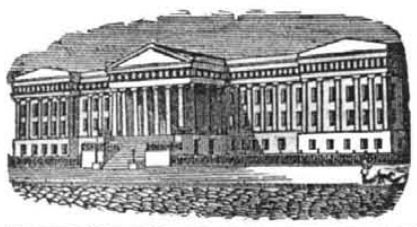

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 1, 1852.

FOUNTAIN PEN HOLDER—By Chas. Cleveland, of Middlebury, Vt.—I claim the combination of the valves in a fountain pen for the admission of air and regulating the flow of ink, with the slide or buttons, and with the spring and slide, in the manner described or in any other substantially the same.

CORN SHELLERS—By David Eldridge, of Philadelphia, Pa.: I claim the combination of the conical concave wedge, and the guard, with the concave wheel, for shelling corn, as described.

RAILROAD CAR WHEELS—By Nehemiah Hodge, of North Adams, Mass.: I claim the construction of car wheels, the combination of the segmental rings and keys, constructed substantially as described, or their equivalents, for the purpose of facilitating the insertion of the ring or band of india rubber or other elastic material, between the central portion and the rim of the wheel, and as a means of fastening or holding the whole together, as set forth

COPYING MANUSCRIPT—By John Jones, of Clyde, N. Y.: I claim, first, the employment or use of the circular rack, which serves as a guide to the index, said rack having a rim attached to its under surface and projecting outwards, with the necessary letters and characters stamped or placed upon it, corresponding to the type placed on the periphery of the horizontal wheel, as specified.

Second, I claim placing or securing the type vertically to the periphery of a horizontal wheel, having a rotating motion, and also a motion in the direction of its axis, by which, with the aid of the rack and index, the required letters may be printed upon the paper, in combination with the roller, levers, and the shaft, or other equivalent device, for the purpose of operating upon the cylinder, and adjusting it to allow for the different thickness of type on the wheel, as described.

Third, I claim the employment of the cylinder upon which the paper is secured, said cylinder having a motion in the direction of its axis, and also a rotating motion, said motions being communicated to it by the devices, as described, or in any other equivalent manner.

VIOLINS—By Wm. S. Mount, of Stony Brook, N. Y.—I claim the construction of that portion of stringed musical instruments which receives the strain of the strings, when tightened in tuning, in such form or forms as will cause the line of that portion of the instrument to be lengthened instead of shortened, if the same be altered at all by the strain.

I also claim the hollow backed violin, or other stringed musical instrument of similar character, constructed substantially in the manner set forth.

REVOLVING BREECH FIRE-ARMS—By Henry S. North, of Middletown, Ct, & C. D. Skinner, of Haddam, Ct.:—We claim the construction of the sliding crotch, substantially as described, to enable it to perform the double purpose of revolving the breech and wedging it up against the barrel, and the combination of the sliding crotch and guard lever, constructed and arranged as specified, by which the breech is rotated, wedged forward, and the gun cocked by one motion back and forward of the trigger-guard, or its equivalent, substantially as described.

SMUT MACHINES—By G. S. Peck, of East Smithfield, Pa.: I claim the arrangement in which the grain is fed in at or near the bottom of the cylinder, through which it is elevated, by means of spirally inclined beaters, nd discharged through the passage or spout, in combination with the ascending blast from the fan or blower, the same being arranged and operated essentially as set forth.

POWER LOOMS—By Rensselaer Reynolds, of Valatia Village, N. Y.: I claim, first, connecting the rocker of each picker staff, made and operated substantially as specified, with the bed on which it rocks, by means of an interposed strap of leather, or other flexible substance, attached at the inner end to the bed and at the outer end to the rocker, substantially for the purpose specified.

Second, forcing the shuttle binders inwards against the shuttle, while boxing, by a gradually increasing force, by means of arms on a rocker provided with a spring, which is acted upon by a pin on the connecting rod of the lay, substantially as described.

Third, securing the rawhide pickers to the inner face of the staffs, by means of the leather strap, or the equivalent thereof, embracing and binding the two together, substantially as described, to insure the firm union to resist the rapid blows, and to prevent pieces of raw hide from breaking and flying, as set forth.

CAST-IRON CAR WHEELS—By Daniel R. Rall, of Rochester, N. Y.: I do not claim the concave plates or sides of the wheel; nor do I intend to limit myself to the precise form of such plates connecting the hub with the rim or tread of the wheel.

But I claim the partitions or braces connecting the rim or tread with the two plates or sides of the wheel, the said partitions or braces extending from the inside of the rim or tread, radially or nearly so, part of the distance towards but not connecting with the hub, as herein set forth.

ESCAPE LADDERS—By J. C. fr. Saloman, of Georgetown, D. C.: I claim forming or constructing a ladder with each successive step from the end or ends, longer than the one preceding it, and connecting said steps with each other by links, made fast at one end to each step, and the other end sliding through eyes in the step above or below, so that the steps can all fold closely together, in the manner substantially as described.

LOOMS FOR WEAVING PILED FABRICS WITHOUT THE FIGURING WIRES—By R. W. Sievier, of Cavendish Square, England: Patented in England, Sept. 5, 1844: Having now described the particular feature of my improvements in looms for weaving, and the mode or method of producing plain or figured goods or fabrics, I desire it to be understood that I claim, first, the novel mode or method of producing plain or figured goods or fabrics having terry or looped surfaces, of the kinds described, by partially beating up certain picks of the shoot or weft threads, and afterwards further beating up or driving home those picks or shoots, in order to cause certain portions of the terry warp to pucker up in loops, but I do not confine myself to any particular number of picks or shoots of weft, but have described a method by which my improvements in producing plain or figured goods or fabrics, having a terry or looped figure, may be accomplished as the number of picks or shoots of weft may be varied, to produce a different appearance in the face of the fabrics woven under my patent, according to the desire of the weaver.

Secondly, I claim varying the forward stroke of the batten, to produce the open or close beating up of the weft, substantially as described, in combination with the apparatus for holding the surface threads or yarns, and carrying them forward in the manner described, or any other substantially similar, for the purpose of aiding in forming, in the loom, the loops of terry fabrics.

VERTICAL TRIP HAMMERS—By Peter Stebbins & John Holmes, of Schenectady, N. Y.: We are aware that vertical trip-hammers, elevated by friction rollers, are not new, neither are cams for regulating the elevation to which such hammers shall be lifted and therefore we do not claim them; but we claim, first, the recessed rollers, in combination with the plain rollers, and springs, or their equivalents, for controlling the operation of the lifting rollers; the projections on the said recessed rollers causing the shaft, lifting roller, and plain rollers, to recede or move from the rollers on the shaft, and thereby allow the hammer to fall, the whole being constructed and arranged and operating substantially as described.

Second, the manner described, of regulating the blow of the hammer, by making the recesses, in the periphery of the rollers of unequal lengths, and making the said rollers movable on their shaft, so that either projection can be brought opposite to and made to act in combination with the plain rollers, in the manner set forth.

MACHINES FOR TURNING AND POLISHING—By B. J. Tayman, of Philadelphia, Pa.: I claim the arrangement of a polishing belt for polishing circular surfaces, in such manner that a bight of it shall pass round the article to be polished and move concentrically or nearly so, to the surface thereof, so as to finish the same rapidly and without the danger of making flat places in its periphery, which is always so imminent when a round article is polished by bringing it in contact with a polishing surface moving in a straight line.

I likewise claim the combination of the rotating tubular cutter for turning the rod with the polishing belts, which, while polishing one end of the rod, grasp it firmly and hold it from turning, whilst its other end is under the action of the cutters, as set forth.

ENGRAVING SURFACES—By Isaac Taylor, of Stamford Rivers, England: Patented in England Feb. 21, 1849: I claim, in the first place, the connecting of rhomboidal frames or pentagraphs, in series, so as that the one which first receives a movement from the hand or other moving power, conveys its movement to a second, and this again, if required, to a third, and so on. as far as the nature of the work to be done may need a high diminution to be carried.

In the second place, I claim the rhomboidal frames or pentagraphs in pairs, so connecting each pair by a rod or bar, at the working joint of each, as that a true geometric point of movement is presented upon every point or spot of such rod or bar, whether the said rod or bar be made to communicate motion to the cutting or other tools which act upon a fixed surface, or whether it be made to communicate motion to the surface itself, either plane or cylindrical, while the tools are fixed. These tools. which may be of any number convenient to apply, or required by the work, may be diamond or steel points, gravers, punches, drills, pencils, pens, or tubes, for conveying colors.

In the third place, I claim the conveying the movement of the rod or bar connecting two pentagraphs, to a cylinder or roller, in such manner as that when points or tools of any required kind are applied to the surface of the same and in whatsoever direction, whether vertically, on the sides, horizontally, or beneath, each point or tool brought into contact with the cylinder, produces thereupon the same figure or mark of whatever kind which it would produce, if operating upon a plane surface.

In the fourth place, I claim the construction of a frame, called in my specification a ruling board, which, by transferring the weight of a loaded cylinder, alternately from the sides or bearers of an external and internal frame, allows each frame in its turn to move backward or forward a distance regulated by screws or other similar means. In this manner, and by the application of a carriage or traversing point to one of these frames, lines may be ruled or engraved with perfect accuracy as to their distance one from the other.

PROCESS OF MANUFACTURING GUTTA PERCHA.—By John Rider, of New York City: I claim the preparing of gutta percha for vulcanizing. by a preliminary separate heating of it to such a degree, as to expel its volatile ingredients herein specified, which I find can generally be effected at the high temperatures from 285 to 430 degrees Fahr., substantially as set forth.

I also claim the process described, of vulcanizing gutta percha, by first heating it to a sufficiently high temperature to expel from it the volatile ingredients specified, which it is believed can be accomplished between 285 and 430 degrees Fahr., and then incorporating with it, substantially as specified, a hyposulphite, either alone or in combination with metallic sulphurets, whiting, magnesia, or with all of them together, and then subjecting the mixture to a temperature of from 285 to 320 degree Fahr., all the steps of the said process being performed substantially in the manner set forth, at the same time desiring it to be understood that I disclaim the vulcanizing of gutta percha in all cases save when it has been prepared for the vulcanizing operation, by the aforesaid preliminary heating.

Animal Phosphorescence.

Herapath, the eminent chemist, has read a paper before the British Chemical Society, combatting the view that animal phosphorescence is owing to the slow combustion of phosphorous. He has made experiments with glow-worms in glass vessels, and whilst emmitting light, no ozone was produced. He ascribes the phenomenon of light in glow-worms to carbon in some allotropic condition not yet understood. This bears on a question at issue between Liebig and Mulder as to whether phosphorus occurs in the animal frame, merely as phosphoric acid or phosphamede. It is our opinion that Herapath is right; the light of the fire-fly is not due to phosphorus, we think, for we do not know of a single case where it has been demonstrated by a careful experiment.

The Electric Fire Telegraph.

MESSRS. EDITORS—Will you allow me to occupy a few lines of your paper in reply to the communication from H. Van Ausdall, of April 24, concerning the "Municipal Telegraph," now in successful operation in Boston. Mr. Van Ausdall, I am persuaded, in his very proper desire to secure the credit which belongs to every original inventor, has not done justice to the real priority of Dr. W. F. Channing's claim.

The first publicity given by Dr. C. to his idea, was as early as June, 1845, when he published an article, which I have seen, in the Boston Daily Advertiser, describing "the use of the Telegraph in our cities, to give an instantaneous, universal, and definite alarm in case of fire," and embracing the following among other principles: a central office, a multiplicity of circuits, duplicate conductors, signal stations to signalize a fire to the centre, and striking machinery at the church bells to be liberated by a galvanic impulse from the centre. In January, 1848, Hon. Josiah Quincy, Jr., the Mayor of the city of Boston, called the attention of the city government to the proposition to institute such a system of fire alarm, and suggested the propriety of experiments to attest the feasibility of the plan. In pursuance of this recommendation, Moses G. Farmer constructed for the city two large models of striking apparatus, with his electro-magnetic escapement, which has since been patented, and which now constitutes an important part of the system in Boston. The attempt was abandoned, not because of failure, but because confidence in the capacity of the Telegraph was not yet established.

These statements, which may be readily verified, if more than the evidence of public notoriety be required, will satisfy Mr. Van Ausdall, I am confident, that his first communication of June 21, 1851, has not the claim of priority which he supposes. But, it may also be added, that, previous to that date, a special committee of the Municipal Government of Boston had reported upon an elaborate communication upon the subject from Dr. C., and an appropriation of ten thousand dollars had been made by the city government to carry the plan into practical operation. The details of the system, as finally erected, are due to Mr. Farmer, the constructor, and to Dr. Channing, the inventor.

These remarks, made in justice to Dr. C., do not call in question the originality which any other gentleman may claim. Indeed, early in the autumn of 1850, without having heard of Dr. C.'s earlier movement, I prepared the outline of a similar system of "Fire Alarms," of which I deemed myself the original inventor; and in a house then in process of erection for my own occupancy, the copper wires for a complete burglar-alarm, including every door and window of two stories, were inserted before the walls were lathed and plastered, ante-dating Mr. Ausdall's public communication by eight or nine months, and his notice of Jan. 29th, 1851, by three or four, in a practical application of the same idea, invented by him. The wires themselves will furnish the best evidence of these statements; and, like Mr. Van Ausdall, in 1850, I also exhibited to neighbors and friends a model which satisfactorily established the utility of the invention.

Will you have the goodness to insert these lines as an act of justice to Dr. Channing, whose indefatigable labors, joined to the rare practical skill of Moses G. Farmer, have carried into successful operation one of the most beautiful and one of the simplest inventions of the present age of marvels? I am confident that Mr. Van Ausdall will cheerfully stand aside with me,—to both of us still belonging the sufficient satisfaction of having really invented the fire-alarm,—that credit may be given publicly, as it is surely due. The invention may belong to several persons as to originality; but the world must confess its indebtedness to its first informant,—although his information did not arrest general attention when he first volunteered his counsel, rather than to any later teacher.

AUGUSTUS R. POPE.

Somerville, Mass., May 28, 1852.

[Mr. Pope has sent us the printed article which appeared in the Boston Daily Advertiser of June 3, 1845, in which Dr. Channing describes his Municipal Fire Alarm Telegraph with great minuteness; he is undeubtedly the first inventor, and Mr. Van Ausdall is a gentleman who will cheerfully concede to him his just claims.

Avalanche at Stillwater, Minnesota.

In the rear of the beautiful village of Stillwater, which nestles under the hill-sides at the head of Lake St. Croix, is a lake of considerable extent, high upon the bluff. This lake has its outlet through the village into Lake St. Croix, down through a ravine or gorge in the hills, which are composed of sand and gravel; and the little stream running from it, is carried high up, across the village in a trough, and propels a large over-shot wheel that drives the machinery of McKusick's saw-mill, in the village, on the lake shore. Recent heavy rairs raised the waters of the lake back of the town very much, and saturated the hills with water, and sent through the ravine a mighty volume. Early one morning the villagers were awakened by a loud rushing noise, and looking out saw an immense river of melted earth slowly coming down through the ravine—spreading wider its current, as it emerged from the hills, burying one or two stables, nearly, crossing the street and filling McKusick's mill half full of deposits—moving onward into Lake St. Croix and depositing there some eight or ten acres of new terra firma in the lake, and making not only a permanent addition of much land to the town, but also an excellent steamboat landing at the edge of the new embankment. In one of the barns which was overflowed, there were two horses, which to save their lives, had struggled and scrambled up, to keep out of the water running into their stable, and saved their lives only by hanging upon the manger with their fore legs; they had to be taken out over the girt. Some cows in a stable were saved with much difficulty. Some half a dozen houses were buried.

How to Cook an Egg.

An egg should not be boiled; it should only be scalded—*vulgo*, coddled. Immerse your egg in, or, what is better, pour upon your egg boiling water. For time, proportion the same to the size and number of your eggs, and the collateral acccidents. If you cook your eggs upon your breakfast table more time will be required. But if you station your apparatus on a good wholesome hob, where there is a fire, and so the radiation of heat is less positive, less time will suffice. The latter way is mine, winter and summer, and the differences of the surrounding circumstances equalize, or nearly so, the time. I keep one egg under water 9 minutes; two, 9½; three, 10; and four, nearly 11 minutes. The yolk first owns the power of the caloric, and will be even firmly set, while the white will be milky, or at most tremulously gelatinous. The flavor superior to anything which a plover ever deposited will be that which the egg of the gallinaceous domestic was intended to have; the substance, that which is delectable to the palate, and easy of digestion. There is perfect absence of that gutta percha quality, in the white especially, at once the result and the source of dyspesia. I believe that eggs would be much more patronized and much more wholesome, if boiling were discarded.—[Cottage Gardener.

Rules for Health.

Rules for health, by a Scotch Philosopher who has tried them all:—Never drink anything but water. Never eat anything but oatmeal. Wear the thickest boots. Walk fifteen miles regularly every day. Avoid all excitement; consequently it is best to remain single, for then you will be free from all household cares and matrimonial troubles, and you will have no children to worry you.—The same rule applies to smoking, taking snuff, playing at cards, and arguing with an Irishman. They are all strong excitents, which must be rigidly avoided, if you value in the least your health. By attending carefully to the above rules, there is every probability that you may live to a hundred years, and that you will enjoy your hundreth year fully as much as you did your twenty first.

[The above is from Punch, and is a good pun on some of the whimsicalities of the present day.

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TO CORRESPONDENTS.

J. W. B., of D. C.—If you look at page 108, Vol. 4, Sci., Am., you will see the description of a wheel like yours. We have seen the model. We do not, at the present time, think very favorably of its principle.

E. H., of N. Y.—We have made the required examination, and do not find anything to interfere with your device for measuring heights, distances, etc.

L. F L.. of N. H.—You could not obtain a patent for the arrangement you propose. It is a suggestion and not an invention of a patentable character.

G. W. B , of Wis.—You had better order the books mentioned in yours of the 12th ult., from the publishers direct.

F. B. H., of Ind.—It is difficult to obtain a patent on an apple-paring machine, as there are now a great variety. Is not yours substantially like J. Weed's, illustrated on page 84, Vol. 5, Sci. Am.? We send you a paper containing it. "Western Horticulturist," Cincinnati, is a good work for you.

J. C. S., of Ohio.—We have seen the same device applied to give a quick motion to a saw from a water wheel; we have no doubt, however, but it is new with you.

J. H., of Mass.—We do not know anything to remedy the evil of the pegs, and at the same time keep them hard. The liquor made from the chloride of lime bleaches, but it is not so good for the wood as the substance you use. You might try some experiments. You can get the stuff at any druggist's; make it up like lime water, steep the wood for a few hours, and then dry it.

J. G., of Ohio—Your invention is a valuable one, we believe, and should be, for your interest, protected by a patent. It is new to us, and we believe it to be patentable.

J. A. E , of Tenn.—Your letter of the 25th May is received; the business will be duly executed.

T. D , of Ala.—We shall be happy to see and advise with Mr. Benjamin when he arrives.

J. C., of N. C.—We have carefully examined the sketch of your improved car wheel. You will find a claim in this number issued to D. R. Rall, which covers all the novelty involved in yours.

W. T. W., of Tenn.—We have your letter of the 26th ult , covering $10. Your engraving shall appear early.

D. B. P., of Pa.—Yes; we consider Burke's patent blind hinge a good invention. We can give you no better description of the construction and operation than accompanied the engraving of it in No. 37. We presume if you will address the party whose advertisement appears in the advertising columns, you will receive an answer to your other inquiries.

V. E. R., of Ill.—We do not see anything patentable in the "Bark Mill." The sketch, however, is imperfect, and may not be fully understood. If you choose, we can again examine it upon being furnished with a better drawing, described by letters of reference.

A. H., of Ill.—The business abroad is rapidly progressing, and will pass the seal soon, we expect.

S. P., of Vt.—A Circular Telegraph, to print Roman characters, is not new. See A. Vail's work on Telegraphs. The operation is too slow, and requires too much electro-magnetic power to operate. Your invention, however, is very creditable for the ingenuity displayed

M. W., S., of Mass.—The papers we had sent before yours of the 5th inst. came to hand. The two names can be added by having the petition copied. We really see no chance for a patent on the pump: the method of communicating motion is well known for other purposes.

J. B. G., of Pa.—We have examined the sketch of Mr. Mark's implement, and think favorably both of its novelty and utility. Should he conclude to forward us a model, he will observe to make it as small as possible, say 12 inches long; it can be sent to us with the government fee by Express.

T. H. D., of N. H.—Your engraving will appear in the next number: we had not room for it in this without crowding our limits.

G. E. S., of Pa.—If you wish to get the full strength of the sumac, cut it when in the bud. The patent you refer to can be taken out here, although first patented in England. It is doubtful about the novelty of the invention on this side. In this number you will see a note about the inventor.

R. A. M., of Ct.—We saw the same invention in 1847, at the Worcester County Fair; it is, we believe, in use in the New England States.

H. C. T., of S. C.—We think the "Protector" is new and patentable, but whether it will answer the requirements, we cannot state. Experiment alone must decide this point; our opinion is favorable to it. We will notice it in a subsequent number. The cost of obtaining a patent would be from $50 to $60, in full.

O. D. M., of N. Y.—Saxony blue is an intense color, imparted by dyeing with sulphate of indigo.

D. E., of Geo.—Certainly, and we shall expect to arrange all the business in time. His patent will soon issue.

J. D., of Ill.—The "stein pappe," or stone paste is more solid than papier mache, harder, and more durable and impervious to water. It is capable of being moulded into any form, and of being colored, silvered, or gilt. Many casts from antique sculptures have been made of it for decorative purposes.

S. E., of La.—We shall give the matter a candid investigation, and speak of it in terms due the cause.

G. E., of Boston—The frequent reference to the transactions of the Society of Arts does not locate it here, as we have no such society. It is located in London, and is a useful society.

M. G., of Va.—You should have an engraving of your invention published in the Scientific American. It would benefit you, we think.

A. E. F., of Mass.—Two polarities is a term expressive of two antagonistic energies, each of which is similar and attracts that which is opposite to itself. Thus the two north or two south poles of two magnetic needles mutually repel each other, but the north pole of one needle, and the south pole of another, mutually attract each other.

A. J., of Ohio—Guano consists of urate of ammonia and other ammoniacal salts; it appears to consist of the excrements of sea-fowl, and is obtained principally from the coast of South America.

A. V. B., of Tenn.—The Theodolite is an instrument for measuring horizontal angles contained between lines supposed to be drawn from any point to two distant objects; it is an old invention, bnt has been somewhat improved within a few years.

A. & C., of Baltimore—The case came duly to hand and the draft for $500, which was cashed on presentation. We shall push the matter to its final issue as rapidly as possible. We think Mr. C. would do well to come on a few days, although we can get along without him.

A. M., of Pa.—The illustration of Usher's Steam Plow appeared in the London News only a few weeks ago, hence we conclude that it is a recent invention. If you can ante-date the publication you can hold a patent for it here: our object in presenting it was to show what had been done; now, whether it will ever be practicable remains to be determined by experiments. We doubt it some.

Money received on account of Patent Office business or the week ending June 5:

D. H., of Va., $55: W. H. R., of Ct., $30; R. F., of N. Y., $20; D. P. G., of Ind., $30; O. W. S , of Ct., $30; J. W. H., of N. Y., $10; J. J. H.. of N. Y., $10; W. S. H., of N. Y., $20; C. M. M., of Pa., $25; A. G. H., of N. H., $30; A. B., of O., $30; A. M. G., of S. C., $5; N. W., of Mass., $35; E. M., of N. Y., $30; S. & S., of N. Y., $27.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending June 5:

D. L.. of Vt.; H B., of N. Y.; W. S. H., of N. Y.; A. B., of O.; S. & S., of N. Y.; E. M., of N. Y.; N W., of Mass.; A. M G., of S. C.; Z. H., of O. (2).

An Important Paragraph.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

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MARYLAND INSTITUTE FAIR—The Board of Managers of this Institute will hold the Fifth Annual Exhibition in the Grand Saloon of the Institute Building, in the city of Baltimore, commencing on the 4th day of October next. The great facility thus afforded for a splendid display of American Manufactures, they hope, will be a sufficient inducement for the Manufacturers, Mechanics, Artists, Inventors, and others throughout the United States, to contribute such specimens of their industry, skill, and ingenuity, as shall be alike honorable and creditable to the mechanical genius and refined taste of the country. The Hall will be open for the reception of goods on Monday the 27th Sept. next, from which time to Thursday night, Sept. 30, articles intended for competition and premium must be deposited. The balance of the week will be devoted to the reception of articles intended for exhibition only, free of charge. After which time depositors will be subject to a charge of 50 cents to $1. On Monday, Oct. 4, at 7 o'clock, P. M., the Exhibition will be open for the reception of visitors. Circulars containing the regulations and arrangements established by the Standing Committee on Exhibitions, can be had by addressing (post-paid) JOHN S. SELBY, Actuary of the Maryland Institute, by whom any information required will be promptly given. 39 7

MACHINERY IN THE GREAT EXHIBITION—22 Copperplate Engravings of the following subjects, and numerous Woodcuts, are given in the Volume of the ARTIZAN for 1851, price $3,50: Retort Settings (Croll's Patent) and Wet Lime Purifiers, for the Great Central Gas Works; Comparison of recent Improvement in Permanent Ways; Ryder's Forging Machine; Brown's Blooming Machine; Curvilineal Planing and Shaping Machine; Ericsson's Caloric Engine; Hydraulic Mine Lifting Machinery; Pumping Engine, by M. Mazeline; Samuel's Locomotive Feed Engine; Galloway's Patent Smoke-Consuming Water-Tube Boilers and Engines; Shipton's Pendulous Engine; Details of the Emperor of Russia's Yacht "Peterhoff," by Messrs. Rennie, and of the Prussian War Steamer "Nix," armed on Mr. Scott Russell's Patent System; Carlson's Direct Acting Engines for the Screw; Long's Steering Apparatus; Details of a Swedish Ornamental Villa; Wigington's Model Dwellings, ventilated on the best principle; large sheet of Designs for Architectural Ornaments in Fire-clay; Result of Experiments of the Commission on the Strength of Iron.

The four preceding volumes may also be had, containing an immense amount of practical information on Civil and Mechanical Engineering, Steam Navigation, Shipbuilding, &c. The Artizan may be had of any bookseller in the United States, by order, or any person forwarding an order for 16 shillings sterling ($3,90) on any London house, will have it sent for a year by post. Address W. K. WHYTEHEAD, Consulting Engineer, office of the Artizan Journal, 69 Cornhill, London. 37 4eow

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 lbs., price $600. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 39 26*

PORTER'S PATENT GRADUATING VALVE FORGE TUYERE—Illustrated in this paper Sept. 6, 1851, gives a sure, quick, and clean heat, and is warranted to save full 25 cts. per day to each fire. Two sizes manufactured. Price $6 to $8. For sale, wholesale and retail, at No. 9 Gold st. W. J. & J. H. BURNETT. 38 4*

NEWELL'S PARAUTOPTIC BANK LOCK—These Locks, which have been tested by the most skillful mechanics of Europe and this country, still remain invulnerable to their combined efforts, proving its superiority over all others. For sale by DAY & NEWELL, 589 Broadway, N. Y. 38 3*

TO CARPENTERS AND DEALERS IN PATENT RIGHTS—The whole right and title to the Patent Blind and Shutter Fastener, which was illustrated in No. 37 Vol. 7 of the Scientific American, will be sold cheap to a cash customer, or the owner of the patent will sell single States (not in smaller quantities) if desired. The invention is a good one; the claims are broad, and it is not an infringement of any existing patent, as decided by parties who have investigated the matter thoroughly. For particulars concerning the purchase of rights, etc., address "DESAIX," box 773, P. O., New York City. 38 3*

NOTICE TO IRON FOUNDERS—The advertiser wishes the situation of "Charge of a Foundry," having had long experience at it, and several years' experience in charge of a machine shop doing new work and repairs. For reference, address A. T. Pierce, Esq., Norwich, Ct., post-paid. 36 4*

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post.paid) MUNN & CO. At this Office.

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CHILDS & TAINTER, Worcester Mass., Builders of Daniel's Planing Machines, either with or without modern improvements. This planer is the greatest labor-saving Planing Machine ever applied to both square timber and boards. Read's feed motion (perfectly practical for all purposes without extra charge) gives the advantage of planing when the carriage is moving both forward and back. The carriage may be run rapid or slow, either way; is drawn from its centre underneath, the pinion working above the rack, secure from shavings, and no belts or gears under the machine. Built heavy and substantial at reasonable notice. 37 3*

DRAUGHT BOARDS, PATENT—Which dispense mostly with the use of Case Instruments, which at best are tedious. The Board combines the use of several valuable instruments. $10, complete. Sent by Express, Direct (post-paid) to H. W. CHAMBERLIN, Pittsfield, Mass. 37 2*

BEARDSLEE'S PATENT PLANING MACHINE, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 23tf

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 26 tf

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Bridgeport, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

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1852 TO 1856.----WOODWORTH'S PAtent Planing, Tongueing, Grooving, Rabeting, and Moulding Machines.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machines. Price from $150 to $760. For rights in the unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 26tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. and 60 Beaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinists's Tools; a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting.
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TO BUILDERS AND WORKERS IN Wood—We are selling a very simple durable, and effective Mortising Machine for $20, boxed ready for shipment. We have sold a large number within the last year, and they have given satisfaction. We furnish three chisels and a lever to operate them. Address MUNN & CO.

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

TRACY & FALES, RAILROAD CAR MANUFACTORY—Grove Works, Hartford, Conn. Passenger, freight, and all other descriptions of railroad cars and locomotive tenders made to order promptly. 26tf

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11 1y

NEW HAVEN MANUFACTURING COMpany, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 12 Platt st., New York, S. C. HILLS, Agent N. H Man'g Co. 25tf

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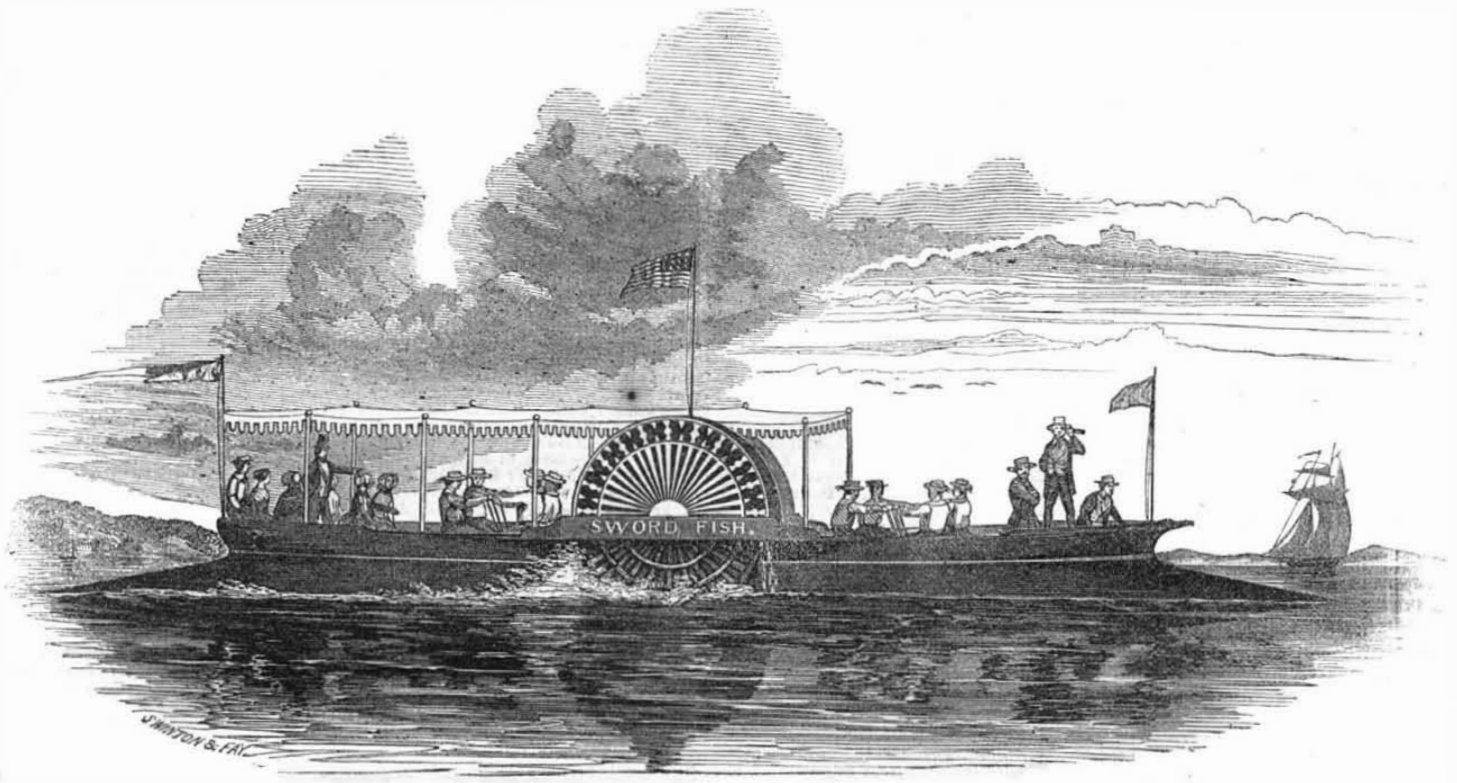
SCIENTIFIC MUSEUM.

Daguerreotypes on Paper.

The Boston Transcript says:—"A valuable improvement in daguerreotypes has been made by Mr. J. A Whipple, of this city, in connection with Mr. W. B. Jones. By a new and delicate process, daguerreotypes can be transferred in the most perfect manner to paper. We have seen several specimens, and can testify to the extraordinary accuracy and beauty of the impressions. The idea of daguerreotyping on paper was first carried out by Mr. Fox Talbot, an English gentleman of fortune, and his invention was called the Talbotype. The greatest difficulty in his process was the uneven texture and fibrous character of the paper, upon which the images were taken. Messrs. Whipple and Jones substituted films upon glass for the paper negatives of Talbot, for which improvement they secured letters patent in the United States. The same thing was discovered at about the same time by Neipce, a French scientific gentleman; but pictures taken in this manner upon glass still lacked the harmony of light and shade desirable. Objects in the shade, as in many daguerreotypes, could not be distinguished. Mr. Whipple has recently improved upon the process so as to obviate this difficulty, and to give in every object represented, the delicate shading of nature The pictures we have seen are in every respect equal to the original daguerreotypes in effect, and superior as objects for preservation and parlor ornament. We commend the curious examination of Mr. Whipple's specimens." [We have seen Talbotypes, long ago which, in *every respect*, equalled Daguerreotypes, and unless Messrs. Whipple & Jones have far transcended the efforts of others, in economy, they cannot claim much by merely rivalling daguerreotypes.

A CHALLENGE.---DAVISON'S NEW MODEL FOR SHIPS, &c.



The accompanying engraving is a view of Darius Davison's pleasure barge the "Sword Fish," which was the first boat built on the new model. It is comparatively a heavy boat as she was intended for a small engine; and yet from her light draught of water and easy water lines, has been run at a speed of 12 miles an hour by the power of eight men, and rides a heavy sea more buoyantly, steadily, easily, rapidly, and is dryer than any boat of similar size built on any other model.—This is asserted by Mr. Davison.

The keel of this vessel is 36 feet, deck 25 feet, and beam 5 feet.

The following is a challenge of Mr. Davison; it is given to the world:—

"I have been frequently asked, within the last week, if I were well enough assured of the speed and sailing qualities of vessels built on my model, to build a vessel to race with one to be built on any other known model from which any vessel has heretofore been constructed?

In answer to these enquiries, and to gratify the interest excited in the public mind in this country and in Europe, in relation to my new model for ocean and river vessels, I will make the following offer, which will be held ready for acceptance for one month from the first day of June:—

I will build and complete within the period of six months from the first day of June, a schooner-rigged yacht on my new model, which shall be one hundred feet on deck, and when completed will cost about thirty thousand dollars; and I will sail her in a race with any other vessel that can be built within that period, on any other known model from which any vessel has heretofore been built; such vessels to be built the same length on deck, viz: one hundred feet. And this is the only point upon which they shall be controlled in dimensions, construction, rigging, or sails, (except that the vessel shall be built of wood). And I will run my yacht in a race with any vessel so built that may be matched against her, after the period of six months from the first day of June, 1852, at any time and place, and under any circumstances that may be chosen by the other parties, whether such contest be upon the river or ocean, with or against the wind, in a heavy or light breeze. If my yacht is beaten I will deliver her with all her appurtences to the winner of the race as a prize, and if the opposing vessel is beaten she shall be delivered to me with all her appurtenances as a prize.

I will give them the further advantage of seeing at my office a lithographic drawing of the model, rig, and sails of the yacht I propose to build as she would appear upon the water.

Respectfully, DARIUS DAVISON

374 Broadway, New York, June 5th, 1852."

Darius Davison & Brother have formed an association to build yachts which they warrant to beat all others.

Mr. Davison's propositions have created no small excitement in our city, and throughout the country. He proposes to build a steamboat to run to and from Albany in one day; also a steamship to beat all others now in existence.

On Boilers.---No. 27.

MATERIALS FOR BOILERS.—It is necessary that steam boilers should be made of the very best materials; of this we have recently had a fearful lesson in this city. A steamboat named the "Eastern City," when getting up steam for her trial trip, two weeks ago, a boiler plate exploded, and no less than five persons lost their lives. It was a new boiler made of the very best Pennsylvania iron, and of a size and form capable of standing 36 lbs. pressure to the square inch, yet the explosion took place when there were only 14 lbs. pressure. The accident was a very unexpected one; it was not caused by carelessness, and no one could have anticipated the sad result. The verdict of the jury was,—We find that the deceased, William H. Stearns, John B. Curtis, Charles Gormas, Francis Mayo and Charles Hall came to their deaths from being scalded by an explosion of the boiler on board the steamer Eastern City, and also that the explosion was caused by a flaw in one of the iron plates of which it was constructed.

The testimony of two witnesses is very important. Peter McMillin being sworn said: "he is one of the superintending engineers of the Allaire Works; is fully acquainted, so far as possible, by observation, with the material in the boiler in question, as well as with the material used in all other boilers built at the Allaire works; the best Pennsylvania plate is used by us for boilers; was present at the time of the explosion." This witness corroborated the testimony of the others who had previously sworn in relation to the trip-shaft. The accident was caused by a flaw in the iron. The sheet which was torn away was imperfect, but this could not have been detected. the boiler was made in the usual manner.

Thomas Fitzgerald sworn, says:—"He has been a boiler maker for eighteen years, and helped make the boiler in question; the iron in the boiler was 3-8ths of an inch in thickness. The explosion was caused by a flaw which could not have been detected when the boiler was making."

In this case no human eye could detect the cause of the explosion previous to its taking place, yet it was a most fatal and sad one. A boiler is no stronger than the weakest part of it, and wherever that is, for a certainty, the steam will be sure to find it out. We are afraid that more explosions take place owing to bad boilers than we are liable to suppose. If this boiler caused so much damage to life, and burst with only 14 lbs. pressure, is it not reasonable to conclude that many explosions must take place when steam is carried as high as 50 or 100 lbs., although the boilers may be constructed to stand double that amount of pressure? There is also a practice not uncommon with some boiler makers, to rust the the rivet holes if the boilers leak. They employ for this purpose a solution of salammoniac, along with some iron filings, and this, when formed for a few days, makes a non-conducting crust. It is not easy to rivet a thick iron boiler by manual labor, so as to make it perfectly water tight, therefore various cements are used to prevent leakage. The plates of iron for boilers should be unequivocally good, without a single doubt on the subject.

Another thing in connection with good iron is the testing of boilers after they are made. This should be done by hydraulic pressure. A plan to accomplish this is proposed in the pamphlet of Mr. Guthrie, and in the bill now before Congress to provide against the explosion of steam boilers, the testing of the boilers by hydraulic pressure is especially provided for. This method of testing boilers probes their weakest parts without danger to any person. Some boilers which we have seen were made of very pure iron; some brittle, and others made of three rolled sheets, two good ones outside enveloping an interior bad one. More attention should be devoted to the materials of which boilers are composed than there has been.

Professor Huss, the first physician in Sweden, has just published an important book on the diseases of the Swedish people. He proves that the Swedes are rapidly deteriorating, physically as to stature and strength, and morally as to intellect and virtue, a state of things which he attributes principally to the enormous use of brandy in that country.

INVENTORS

Mechanics and Manufacturers

Will find the SCIENTIFIC AMERICAN a journal exactly suited to their wants. It is issued regularly every week in FORM SUITABLE FOR BINDING. Each number contains an Official List of PATENT CLAIMS, notices of New Inventions, Chemical and Mechanical; Reviews, proceedings of Scientific Societies; articles upon Engineering, Mining, Architecture, Internal Improvements, Patents, and Patent Laws; Practical Essays upon all subjects connected with the Arts and Sciences. Each Volume covers 416 pages of clearly printed matter, interspersed with from Four to Six Hundred Engravings, and Specifications of Patents. It is the REPERTORY OF AMERICAN INVENTION, and is widely complimented at home and abroad for the soundness of its views. If success is any criterion of its character, the publishers have the satisfaction of believing it the first among the many Scientific Journals in the world.

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Publishers of the Scientific American,
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Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—

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